

Family Functioning and Multi-Family Therapy in Eating Disorders

Lies Depestele

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"We lopen maar en lopen maar. En soms komen we op een punt uit waar we eerder zijn geweest. Dan d nken we: als we nu verder gaan langs dezelfde weg waarlangs we de vorige keer zijn gegaan, dan komen we weer op dit punt uit, dat m et... Maar dat gebeurt niet. Het gaat altijd weer anders.."

Toon Tellegen

Lies Depestele Family Functioning and Multi-Family Therapy in Eating Disorders

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Patients with eating disorders (EDs) often engage in binge-eating/purging (BP) behaviours and/or in non-suicidal self-injury (NSSI), which both are considered as indicators of severity of ED psychopathology. Theory suggests that the presence of BP behaviours and NSSI in ED patients might be associated with more family dysfunction compared to ED patients without these behaviours. It is likely that patients and parents get caught in a negative circle of deteriorating symptoms and disqualifying interaction patterns. Yet, in the light of the development of appropriate family interventions targeting ED symptoms and interaction patterns, it is of great importance to reconsider possible associations between BP behaviours and/or NSSI and family interactions.

In the first line of research, we investigated whether there exists an association between the presence/absence of BP behaviours and/or NSSI in ED patients and family functioning (Chapter 2), parental caregiving experiences (Chapter 3) and psychological controlling versus autonomy-supportive parenting (Chapter 4). The results of these studies showed an interaction effect of the presence/absence of BP behaviours and NSSI on family functioning (Chapter 2), a negative association between BP behaviours and positive caregiving experiences among the mothers and a positive association between NSSI and negative caregiving experiences among both parents (Chapter 3). Finally, a positive association was found between BP behaviours and maternal psychological control (Chapter 4).

In the second research line, we developed a multi-family therapy (MFT) intervention, which may be applied with or without the ED patient (Chapter 5). We investigated the effects of the MFT intervention with and without the patient on ED symptoms, family functioning and parental caregiving experiences. We explored whether outcome of the MFT intervention differed according to the presence/absence of the patient, the presence/absence of BP behaviours and the informant (patients, mothers, fathers). Results revealed no difference between the outcome of the intervention with and without the patient. Patients' ED symptoms and negative caregiving experiences in parents decreased after both MFT interventions. Family functioning improved differently according to the informant (Chapter 6).

In Chapter 7, we compare our findings with the existing international literature. Further, we discuss the strengths and limitations of our studies and we give recommendations for future research. Finally, we discuss the clinical implications of our findings.

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Patiënten met eetstoornissen rapporteren vaak eetbuien en purgeergedrag (binge-eating/purging; BP) en opzettelijk zelfverwondend gedrag (ZVG). Beide gedragingen worden beschouwd als indicatoren voor de ernst van de psychopathologie. Vanuit de theorie denken we dat er bij patiënten met BP gedrag en/of ZVG meer problemen zijn binnen de het gezin dan bij patiënten met eetstoornissen zonder deze symptomen. Patiënten en hun ouders zijn mogelijks vatbaar voor de neerwaartse spiraal van symptomen en niet-helpende interacties. Dus, mede met het oog op de ontwikkeling van gepaste gezinsinterventies die focussen op eetstoornissen en interactiepatronen, is het van belang om een mogelijk verband tussen BP bedrag en/of ZVG en gezinsinteracties verder te onderzoeken.

In de eerste onderzoekslijn gingen we na of de aanwezigheid van BP gedrag en/of ZVG bij de patiënt samenhangt met het gezinsfunctioneren (hoofdstuk 2), de zorgervaring van ouders (hoofdstuk 3) en het psychologisch controlerend versus autonomie-ondersteunend opvoeden (hoofdstuk 4). De studies in de eerste onderzoekslijn illustreerden een interactie-effect van BP gedrag en ZVG op het gezinsfunctioneren (hoofdstuk 2), een negatieve samenhang tussen BP gedrag bij de patiënt en positieve zorgervaringen bij de moeder en een positieve samenhang tussen ZVG en negatieve zorgervaringen bij beide ouders (hoofdstuk 3). Tenslotte werd er evidentie gevonden voor een positieve samenhang tussen BP gedrag en méér psychologische controle door de moeders (hoofdstuk 4).

In de tweede onderzoekslijn ontwikkelden we een familiegroepsinterventie voor eetstoornissen die uitgevoerd kan worden in aan- of afwezigheid van de patiënt (hoofdstuk 5). We onderzochten of deze interventie invloed heeft op de eetstoornissymptomen, het gezinsfunctioneren en de zorgervaring van de ouders. We gingen na of de effecten van de interventie anders zijn in functie van de aan- en afwezigheid van de patiënt, het al dan niet aanwezig zijn van BP gedrag en naargelang de informant (patiënt, moeder, vader). De resultaten toonden geen verschil aan tussen het effect van de interventie met en zonder aanwezigheid van de patiënt. Na beide interventies verminderden de eetstoornissymptomen bij de patiënt en de negatieve zorgervaringen bij de ouders. Het gezinsfunctioneren verbeterde verschillend naargelang de informant (hoofdstuk 6).

In hoofdstuk 7 vergelijken we de resultaten van ons onderzoek met de internationale literatuur. Verder bespreken we de sterktes en beperkingen van het onderzoek en geven we aanbevelingen voor verder onderzoek. We ronden af met een bespreking van de klinische implicaties van het onderzoek.

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CHAPTER 1

GENERAL INTRODUCTION

This PhD dissertation contains two main lines of research. First, this dissertation aims to increase our insight into the relationship between impaired family functioning (family functioning, caregiving experiences and parental style) and the presence/absence of binge-eating/purging (BP) behaviours and non-suicidal self-injury (NSSI) in adolescents with an eating disorder (ED). Secondly, this dissertation describes the development a multi-family therapy (MFT) intervention, which may be conducted with or without the ED patient, to empower families/parents of ED patients and it investigates the effectiveness of multi-family therapy group therapy with or without the ED patient in an ED unit.

In this introductory chapter we provide a general introduction about EDs, the role of family factors in EDs and the use of multi-family therapy in the treatment of EDs based on the literature. First, we provide a short description of the symptoms of EDs, the prevalence, the medical complications and the course of ED psychopathology. We do not only focus on the detrimental impact of an ED on one's own personal life but also on the life of the family. Secondly, we discuss the complex relationship between specific family factors (i.e., family functioning, parental caregiving experiences, parental style) and ED and related symptoms (BP behaviour/NSSI). The association between EDs and impaired family functioning has led us to the development of family interventions focusing on the family as a resource for recovery. Thirdly, we describe the theoretical base for the development and application of multi-family therapy (MFT) in EDs as we will investigate its outcome. Finally, we end with an overview of the different chapters of the PhD dissertation.

1. Eating disorders

In this section, we provide a short description of ED psychopathology according to DSM-5 (American Psychiatric Association (APA), 2013; see Appendix A) (1.1.) and we discuss the prevalence and age of onset (1.2.), the medical complications and mortality (1.3.), the psychiatric comorbidity (1.4.) and the psychosocial complications (1.5.) of ED psychopathology.

1.1. Definition

Core ED features consist of the disturbance of eating and the over-evaluation of shape or weight. According to the American Psychiatric Association's (2013) Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM–5; see Appendix A), EDs are divided into five major diagnostic categories: anorexia nervosa (AN), bulimia nervosa (BN), binge-eating disorder (BED), other specified feeding or eating disorders (OSFED), and unspecified feeding or eating disorders (UFED).

AN is characterised by an extremely low body weight ($< \text{BMI } 17.5$) and a fear of its increase. AN is categorized into two subtypes distinguished by the presence or absence of binge-eating and/or purging behaviours (such as vomiting or misuse of laxatives, diuretics, or enemas): AN of the restricting type (AN-R) and AN of the binge-eating/purging type (AN-BP). BN is characterized by recurrent episodes of uncontrolled overeating or binge-eating, accompanied by extreme weight-control behaviours (e.g., strict dietary restriction, frequent self-induced vomiting or laxative misuse) to counteract weight gain. The binge eating and inappropriate compensatory behaviours both occur, on average, at least once a week for three months. BED is characterized by recurrent episodes of uncontrolled overeating or binge-eating but without weight-control behaviours and may cause overweight. UFEDs encompass variants of these disorders but not specified which one. OSFEDs encompass variants of these disorders but with sub-threshold symptoms (e.g., purging without objective binge-eating). OSFEDs were formerly categorized as Eating Disorders Not Otherwise Specified (ED-NOS), a diagnostic category used in DSM-IV (APA, 1994) which has been revised and refined in DSM-5 (APA, 2013).

1.2. Prevalence and age of onset

The lifetime prevalence rate of EDs according to DSM-IV criteria in Europe is estimated to be around 2.5% (3.7% among women and 1.2% among men): lifetime prevalence rates of AN, BN, and BED are respectively estimated to be 0.48%, 0.51% and 2.15% in a general European population (Preti et al., 2009). Incidence rates of AN in Europe appear to be stable, whereas incidence rates of BN seem to decline (Keski-Rahkonen & Mustelin, 2016).

AN typically arises during adolescence with a mean age of onset around 15 years (Hudson et al., 2007). The age of onset of BN is usually slightly later than the onset of AN and in about

one-third of cases there is a preliminary phase of AN preceding the development of bulimic symptoms (Treasure, Williams, & Schmidt, 2010). Although a small proportion (12% in Eddy et al., 2002) of AN-R patients successfully manage to restrict their eating over protracted periods, for many of them the overcontrol might break down and these patients can move to AN-BP (62% in Eddy et al., 2002) or to BN (36% in Tozzi et al., 2005). AN-BP patients seem to have more in common with BN patients than with AN-R patients (e.g., impulsivity; Claes, Nederkoorn, Vandereycken, Guerrieri & Vertommen, 2006) and display often higher levels of psychopathology and worse outcome compared to AN-R patients (e.g., Salbach-Andrae et al., 2008).

1.3. Medical complications and mortality

However, all EDs are associated with serious medical complications particularly among AN patients (Mitchell & Crow, 2006). ED patients often show dermatological changes, some signalling serious underlying pathophysiology, such as purpura, which indicates a bleeding diathesis. Gastrointestinal complications can be serious, including gastric dilatation and severe liver dysfunction. Patients with AN are at risk of various cardiac arrhythmias and often suffer from acrocyanosis. Further, patients with low weight are at high risk for osteopenia/osteoporosis. Nutritional abnormalities are also common (e.g., sodium depletion and hypovolemia, hypophosphatemia and hypomagnesemia). Resting energy expenditure, although very low in low-weight patients, increases dramatically early in refeeding (Mitchell & Crow, 2006).

Additionally, there is an increased mortality rate (standardized mortality ratio ranges from 4.5 to 8 %) in ED patients, particularly among patients with a long illness duration, substance abuse, low weight and poor psychosocial functioning (Franko et al., 2013). A large long-term follow-up study of Fichter and Quadflieg (2016) of consecutively admitted inpatients (N = 5839), showed standardized mortality ratios of 5.35 for AN, 1.49 for BN, and 1.50 for BED which is in line with the results of a meta-analysis showing standardized mortality ratios of 5.86 for AN, 1.93 for BN, and 1.92 for EDNOS (Arcelus, Mitchell, Wales, & Nielsen, 2011). AN patients often die earlier than patients with BN, BED, or eating disorder not otherwise specified (ED-NOS; see DSM-IV). AN patients mostly die from natural causes closely related to their ED (e.g., circulatory collapse, cachexia, organ failure, infection; Fichter & Quadflieg, 2016) but 1 in 5 individuals with AN who die, has committed suicide (Arcelus et al., 2011). An

increased risk of suicide is found across all ED diagnoses (Fichter & Quadflieg, 2016). Suicide attempts frequently occur among ED patients (13% in Favaro & Santonastaso, 1997) and are most prevalent in ED patients presenting binge-eating/purging (BP) behaviour (e.g., 5% in AN-R vs. 16% in AN-BP; $\chi^2_{(1)}=4.85$, $p = 0.03$ in Favaro & Santonastaso, 1997) and occur more often among ED patients who reported a history of NSSI (e.g., 52% in NSSI vs. 14% in non-NSSI; $\chi^2_{(1)}= 50.48$, $p < 0.001$ in Favaro & Santonastaso, 1997). Evidence suggests that death by suicide may be higher in EDs than in any other psychiatric disorder (Crow et al., 2009).

1.4. Psychiatric comorbidity

EDs are also often associated with a wide range of comorbid mental disorders such as mood disorders (42–71% in Hudson et al., 2007), anxiety disorders (48-81% in Hudson et al., 2007), and personality disorders (33% in Godt, 2002). According to a European study, over 70% of individuals with an ED report comorbid disorders (Keski-Rahkonen & Mustelin, 2016). BN is often associated with substance abuse problems and AN with obsessive-compulsive symptoms (Krug et al., 2009; Turner et al., 2014).

Several studies showed that the AN-BP patients display higher comorbidity rates, higher levels of psychopathology and worse outcome compared to AN-R patients (e.g., Bühren et al., 2014; Hoffman et al., 2012).

Furthermore, between 40% and 60% of ED patients engage in NSSI referring to any socially unacceptable, intentional, and direct injury of one's own body tissue without suicidal intent (i.e., cutting, bruising, scratching, biting or burning oneself) (Claes et al., 2006; Claes et al., 2014; Nock & Favazza, 2009; Peebles, Wilson, & Lock, 2011). The presence of NSSI in patients with EDs can be considered as an important indicator for the severity of general psychopathology and is often associated with decreased responsiveness to therapeutic interventions (Claes & Muehlenkamp, 2014; Vansteenkiste, Claes, Soenens, & Verstuyf, 2013). 'Self-cutting' is the most common form of NSSI in ED patients (Claes, Vandereycken, & Vertommen, 2003; Peebles et al., 2011). The prevalence of NSSI appears to be higher in ED-BP patients (e.g., AN-BP, BN) compared to ED-R patients (e.g., Favaro & Santonastaso, 2000; Riley, Davis, Combs, Jordan, & Smith, 2016; Svirko & Hawton, 2007). Svirko and Hawton (2007) reported in their review on NSSI in EDs that the occurrence of NSSI in ED

patients varied between 13.6% and 42.1% for AN-R, between 27.8% and 68.1% for AN-BP and between 26% and 55.2% for BN. There is evidence that the increase in NSSI prevalence from AN-R over AN-BP to BN might be attributed to increased impulsivity from restrictive to binge–purging EDs (Claes et al., 2013; Claes, Vandereycken, & Vertommen, 2004). ED patients engaging in NSSI are also more likely to have a comorbid mood disorder and to engage in substance abuse compared to ED patients without NSSI (Peebles et al., 2011).

1.5. Psychosocial complications

Having an ED has an important impact on one's own life: it might impact the patients' role performance at home, at school and/or at work (Preti et al., 2009). In adolescence, young people develop independence from their parents and turn to peers for support and companionship. In young ED patients, this developmental process is interrupted and is likely associated with academic failure and poor social relationships (Bühren et al., 2014). Adolescent social and role impairment was found to be more common among adolescents with AN compared to patients with BN (Swanson, Crow, Le Grange, Swendsen, & Merikangas, 2011).

However, suffering from an ED does not only affect one's own personal life but also affects the caregiving experiences of close family members (Zabala, Macdonald, & Treasure, 2009), usually the parents. This often results in unhelpful parenting strategies (e.g., psychological controlling, less autonomy supportive; Goddard et al., 2013) and affects the functioning of the family as a whole (Dimitropoulos, Carter, Schachter, & Woodside, 2008). The presence of additional symptoms (e.g., BP behavior, NSSI) in ED patients might aggravate family dysfunction, the use of parental psychological control and negative caregivers' experiences. Patients and parents often get caught in a negative circle of deteriorating symptoms and disqualifying interactions. Therefore, it is important to investigate possible associations between BP behaviours and/or NSSI and family functioning, parental style and parental caregiving experiences.

Accordingly, in the next section we discuss the literature on the impact of ED symptoms (e.g., the presence/absence of BP) and/or NSSI behaviours on family functioning, caregivers' experiences and parental style (e.g., psychological control and autonomy support).

2. Family interactions in patients with eating disorders

In this section, we discuss the existing literature on the relationship between ED symptoms and respectively family functioning (2.1.), parental caregiving experiences (2.2.) and parental style (2.3.) in function of informant (patient, mother or father), ED diagnosis, the presence/absence of BP and NSSI. In paragraph 2.4, the relationship between the three concepts is discussed and the aims of the first research line of this dissertation are formulated.

2.1. Family functioning in eating disorders

2.1.1. Definition

The concept 'family functioning' can be defined as the process of continuous change within the family system and between the family and the environment (Davidson, 2001). Family functioning refers to the different ways in which family members interact with each other and includes the rules that govern behaviour of family members, the roles that are fulfilled by the family members, the level of emotional involvement and the interest that family members invest in each other's well-being (Miller et al., 1985). Alderfer et al. (2008) postulated that "when families are functioning well, roles are clear, communication is open and straightforward, and affect is well regulated. In contrast, when a family is functioning poorly, it may, for example, respond to stress by becoming disorganized and chaotic with unfocused communication patterns and emotional dysregulation. Alternatively, it may become over-controlled, with increased rigidity of roles, inadequate communication, and a restricted range of affect" (Alderfer et al., 2008, pp. 1046-1047).

2.1.2. Family functioning in ED patients

An important body of evidence showed that family functioning in families with an adolescent suffering from an ED is worse compared to families without an ED patient. Overall, families with an ED patient showed more problems (e.g., worse communication, less affective responsiveness) in family functioning compared to families without an ED patient. However, a typical pattern of family functioning in families with an ED patient could not be identified (Eisler, 2005; Holtom-Viesel & Allan, 2013; Laghi et al., 2017).

2.1.2. Family functioning: Patients' and parents' perspectives

Several studies showed significant differences between patient and parental perceptions of 'general family functioning' with patients describing their families as more dysfunctional than one or both parents (Dancyger, Fornari, Scionti, Wisotsky, & Sunday, 2005; Ciao, Accurso, Fitzsimmons-Craft, Lock, & Le Grange, 2015). However, studies focusing on specific aspects of family functioning, showed mixed results (e.g., Holtom-Viesel & Allan, 2014). For example, Laghi and colleagues (2017) reported that AN female adolescents rated their families as less rigid compared to their mothers; whereas Tafá et al. (2017) reported that AN adolescents scored their families higher on rigidity than their parents.

2.1.3. Family functioning in AN versus BN patients

Studies comparing family functioning between different ED subtypes (such as AN and BN) could not identify specific patterns of family functioning for AN and BN patients.

On the one side, a large number of studies did not find any significant differences in family functioning between AN and BN families (Dancyger et al., 2005; Latzer, Hochdorf, Bachar, & Canetti, 2002; McDermott, Batik, Roberts, & Gibbon, 2002).

On the other side, some studies found significant, sometimes contradictory, differences in family functioning between AN and BN families. AN families reported more cohesion compared to BN families (Kog & Vandereycken, 1989). BN families reported lower problem solving, role performance, affective involvement and behavioural control compared to AN families (Fornari et al., 1999). Further, Tozzi and colleagues (2005) reported that perceived parental criticism was particularly salient for individuals with AN who crossed over to BN. This is in line with a more recent study on parental criticism (Rienecke, Sim, Lock, & Le Grange, 2016) showing higher parental criticism in families of BN patients compared to families of AN patients. In a recent study of Tafá and colleagues (2017), adolescents with AN characterized their family as highly disengaged, poorly interwoven and rigid, whereas cohesion and communication quality were perceived to be low. Adolescents with BN described their family as more enmeshed and, similarly to adolescents with AN, lacking in effective communicating.

2.1.4. Family functioning in ED patients with and without BP behaviours and/or NSSI

McDermott and colleagues (2002) found that across all ED subtypes the presence of BP behaviours was associated with more difficulties with planning of family activities and with confiding in each other although they did not find any significant differences in family functioning between AN and BN families. Also Casper and Troiani (2001) found that AN patients with BP behaviours reported more problems with task accomplishment, affective expression and affective involvement compared to AN patients without BP behaviours.

With regard to NSSI, to our knowledge, only one study compared the family environment of ED patients with or without NSSI (Claes, Vandereycken, & Vertommen, 2004). Claes et al. (2004) found that ED patients with NSSI described their family environment as less cohesive, less expressive, less socially-oriented and more conflictual and disorganised than patients without NSSI. A study by Claes, Soenens, Vansteenkiste, and Vandereycken (2012) showed that the relationship between parental criticism and NSSI in ED patients was mediated by high self-criticism.

2.1.5. Conclusion

Overall, it can be concluded that family functioning in families with an ED patient is worse compared to families without an ED patient (Holtom-Viesel & Allan, 2013). However, findings of studies on differences in family functioning for different ED subtypes are mixed and contradictory (Tafá et al., 2017). Finally, there is very few research on the role of specific behaviours such as BP behaviours and NSSI on family functioning. Given the high prevalence rates of these behaviours across all ED diagnoses (Peebles, Wilson, & Lock, 2010) and assuming an 'aggravating' role of both BP behaviours and NSSI in family dysfunction (e.g., Wisotsky et al., 2003), research on similarities and/or differences in family functioning of ED patients with or without BP behaviours and/or NSSI is urgently needed taking into account a multi-informant perspective (patients, mothers or fathers) (e.g., Ciao et al., 2015). This will be one of the aims of our research.

2.2. Experiences of caregiving in ED families

2.2.1. Definition

The concept 'experience of care' refers to the whole experience of those caring (mostly the parents) for an individual with a mental illness by encompassing the negative as well as the positive aspects of the caregiving role. A negative caregiving experience or caregiver burden refers to the physical, emotional and social problems associated with caregiving (Sepúlveda, Whitney, Hankins, & Treasure, 2008) and is often associated with mental health problems and distress among carers (e.g., Winn et al., 2007). Thereby a distinction is made between the carers' objective and subjective perceptions of the caregiving experience (Schene, 1990). 'Objective burden' relates to the tasks involved in caring, such as providing meal support, and the time involved in completing these tasks. 'Subjective burden' refers to the positive or negative feelings that may be experienced when giving care or may be defined as the carer's appraisals of the situation (Hunt, 2003). Positive aspects of caregiving have not caught much attention from researchers and refer to positive appraisals of the caregiving situation and positive aspects of caregiving including better relationships, increased self-esteem, feeling appreciated, enhanced sense of meaning or purpose, pleasure, and prevention of further deterioration (e.g., Kate, Grover, Kulhara, & Nehra, 2012).

2.2.2. Experiences of caregiving in parents of ED patients

The general caregiving experiences of parents of patients with an ED have been summarized in several systematic reviews (Anastasiadou, Medina-Pradas, Sepúlveda, & Treasure, 2014; Zabala et al., 2009). These reviews showed that caregivers of ED patients reported high rates of burden, a reduced quality of life and an increased risk to develop clinical levels of depression and anxiety. Caregivers of ED patients reported more caregiving difficulties compared to parents of healthy controls (e.g., experiencing shame or self-blame; Kyriacou, Treasure, & Schmidt, 2008) and compared to caregivers of psychotic patients (e.g., more feelings of loss; Treasure et al., 2001) although there were some similarities in the experiences of caregivers of patients with AN and schizophrenia (e.g. feelings of guilt; Graap et al., 2008).

The caregiving experience of parents of ED patients depends on several factors: Caregiving experiences were worse when parents had a higher need for information, had less social support, perceived more negative illness consequences, when illness duration was longer and when parents spend more time with their child (Whitney, Haigh, Weinman, & Treasure, 2007; Winn et al., 2007). Furthermore, the tendency of family members to adjust or to accommodate their behaviours to the illness might contribute to the experience of burden (Rhind et al., 2016; Whitney, Murray, Gavan, Todd, Whitaker, & Treasure, 2005). Family members may 'obey ED rules' and safety behaviours such as high control over family food and meal rituals (Treasure, 2010). An example of unhelpful accommodation to the illness is described by a parent in a qualitative study of Whitney and colleagues (2005, p. 447): *"You cling to any sign of eating something, you put up with very lengthy trips to the supermarket, sometimes hours, in the hope that they will actually allow you to buy something, backwards and forwards across the supermarket, putting items in and taking them out of the trolley, and not much at the end of it"*. The use of unhelpful coping strategies and reactions to the ED characterized with high expressed emotions might also contribute to the carer's subjective burden (Coomber & King, 2013).

2.2.3. Caregiving experiences: Mothers' and fathers' perspectives

Research suggested that mothers of ED patients have more negative caregiving experiences and lower quality of life related to both mental and physical health, compared with fathers (e.g. Anastasiadou et al., 2016). Mothers are also more often engaged in accommodating behaviour than fathers, which is probably due to the more frequent contact of the mothers with the patients (objective burden; Anastasiadou et al., 2014; Goddard et al., 2013; Rhind et al., 2016). These findings are in line with a study on caregiving experiences in severe mental illnesses (Møller, Gudde, Folden, & Linaker, 2009) showing that female relatives reported significantly higher rates of both negative and positive caregiving experiences than their male counterparts.

2.2.4. Parental caregiving experiences in AN versus BN patients

Studies comparing the caregiving experiences between parents of AN versus BN patients showed conflicting results. Graap et al. (2008) found that parents of AN patients experienced higher levels of subjective burden, had more concerns about the chronic course of the illness

and the patient's future, and expressed more need for professional support than parents of BN patients (Graap et al., 2008). Similarly, Santonastaso et al. (1997) also found that family members of individuals with AN reported higher objective and subjective burden compared to families of individuals with BN. But Sepúlveda et al. (2009), on the contrary, found higher levels of general and specific caregiving difficulties in caregivers of patients with BN compared to patients with AN.

2.2.5. Caregiving experiences in ED patients with and without BP behaviours and/or NSSI

Very few studies focused on the role of BP behaviours and/or NSSI in the caregiving experiences of ED patients. Martín et al. (2013) found that across all ED diagnoses, the presence of BP behaviours predicted lower quality of life among caregivers (Martín et al., 2013). Further, the presence of NSSI in ED patients seems to be associated with more parental burden and less parenting confidence (Arbuthnott & Lewis, 2015; Claes, Vandereycken, & Vertommen, 2006).

2.2.6. Conclusion

In sum, there is evidence that the caregiving experience among parents, and especially among mothers of ED patients is problematic (Zabala et al., 2009). There is also evidence that carers of AN patients might experience more difficulties than carers of BN patients (Graap et al., 2008) and that the presence of BP behaviours across all ED subtypes is related with a lower quality of life among caregivers (Martín et al., 2013). Further, it is suggested by research in community samples that the presence of NSSI is associated with more parental burden (Arbuthnott & Lewis, 2015). These findings might indicate that the presence of both BP behaviours and NSSI in ED patients might aggravate the parental caregiving experiences. However, the specific role of BP and/or NSSI behaviours in parental caregiving experiences is poorly investigated and further research is needed in this domain, which will be one of our research aims.

2.3. Parental style in ED families

2.3.1. Definition

Parental style refers to the strategies that parents use in their child rearing and can be characterized along several dimensions, such as parental autonomy support and parental psychological control. Parental autonomy support can be defined as the extent to which parents support the autonomy development (i.e., volitional functioning) of their child. Parental psychological control can be defined as the extent to which parents intrude upon their child's thoughts, feelings and behaviour in a controlling way (Barber, 1996; Grolnick & Pomerantz, 2009). Autonomy supportive parents promote autonomy by being empathic to their child's perspective, by providing choices to their child whenever it is possible, and by helping their child to explore and act upon their true personal values and interests (Grolnick, 2003; Soenens, Vansteenkiste, Lens, Luyckx, & Goossens, 2007). Conversely, controlling parenting can be defined as parenting that is pressuring and domineering in nature (Grolnick & Pomerantz, 2009). One type of parental control is parental psychological control, which refers to parental behaviours that intrude upon their child's thoughts and feelings (Barber, 1996). Psychologically controlling parents excessively use manipulative techniques such as guilt induction and love withdrawal to push adolescents to think, act, or feel in certain ways. Consequently, in a controlling environment a child will feel like he/she has no choice but to think or feel in ways that are dictated by his/her parents (Barber, 1996). Although autonomy-supportive and psychologically controlling parenting are typically contrasted with each other, recent research shows that it is important to distinguish between both parenting constructs (Costa, Cuzzocrea, Gugliandolo, & Larcan, 2016). This is because the absence of controlling parenting cannot be equated with the presence of autonomy-supportive parenting, and vice versa.

2.3.2. Parental autonomy support and psychological control in ED patients

Parental autonomy support has been linked to several positive developmental outcomes in adolescents, including well-being and school achievement (Soenens et al., 2007; Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004). However, the role of an autonomy-supportive parental style in the development, maintenance and treatment of EDs has not been systematically studied. Two recent studies showed the beneficial effects of a perceived

autonomy-supportive parental style on the patients' autonomous motivation for treatment resulting in better treatment outcome (i.e., weight gain in AN patients) (Steiger et al., 2017; Van der Kaap-Deeder et al., 2014).

Several other studies examined the role of psychologically controlling parenting in the context of EDs. These studies demonstrated mainly indirect associations between psychologically controlling parenting and the development of ED symptoms mediated by variables such as maladaptive perfectionism, distress or self-competence (Dring, 2015; Miller-Day & Marks, 2006; Snoek, Engels, Janssens, & van Strien, 2007). Soenens et al. (2008) found that parental psychological control was related to maladaptive perfectionism of ED patients, which, in turn, was related to ED symptoms. Goddard et al. (2013) found that parental psychological control perceived by AN inpatients was associated with a higher level of ED symptoms and that this association was mediated by carers' and patients' distress. Further, Salafia et al. (2009) found - in a longitudinal community study - that high maternal psychological control led to lowered adolescents' self-competence, which in turn predicted increased bulimic symptoms.

2.3.3. Parental style: patients' and parents' perspective

Parents and children often report different perspectives about parents' behaviours (Sessa, Avenevoli, Steinberg, & Morris, 2001). The correspondence between adolescents' and parents' reports is usually found to be modest, with parents providing a more positive picture than adolescents (Korelitz & Garber, 2016). However, research on cross-informant consistency in ratings of psychological controlling and autonomy-supportive parenting behaviour in ED patients is lacking.

2.3.4. Parental style in AN versus BN patients

A few studies investigated the relation between controlling parenting and ED subtype (e.g., AN versus BN). A higher level of paternal overprotection (but not maternal overprotection) measured by the Parental Bonding Inventory (PBI; Parker, Tupling, & Brown, 1979) was found among BN patients compared to AN patients (Leung, Thomas, & Waller, 2000). Soenens et al. (2008) found higher levels of paternal psychological control in BN patients compared to a control group. The AN-R group was situated in between the BN and the control group, but did not significantly differ from the BN group and the control group.

However, other studies did not find any difference in parental style between AN and BN patients (Terenó, Soares, Martins, Celani, & Sampaio, 2008).

2.3.5. Parental style in ED patients with and without BP behaviours and/or NSSI

As far as we know, only a few studies examined whether parenting variables are related to the presence of BP behaviours and/or NSSI. With regard to BP behaviours, there is only indirect evidence provided by a few studies investigating the relation between controlling parenting and ED subtype (see previous paragraph). With regard to NSSI, a study by Fujimori et al. (2011), using the Parental Bonding Inventory (PBI; Parker, Tupling, & Brown, 1979), reported that ED patients with NSSI perceived their fathers to be less caring and to be more controlling than patients without NSSI. Other studies showed that ED patients engaging in NSSI reported higher levels of parental criticism (Claes et al., 2012) and felt more external pressure to change than those without NSSI (Vansteenkiste, Claes, Soenens, & Verstuyf, 2012).

2.3.6. Conclusion

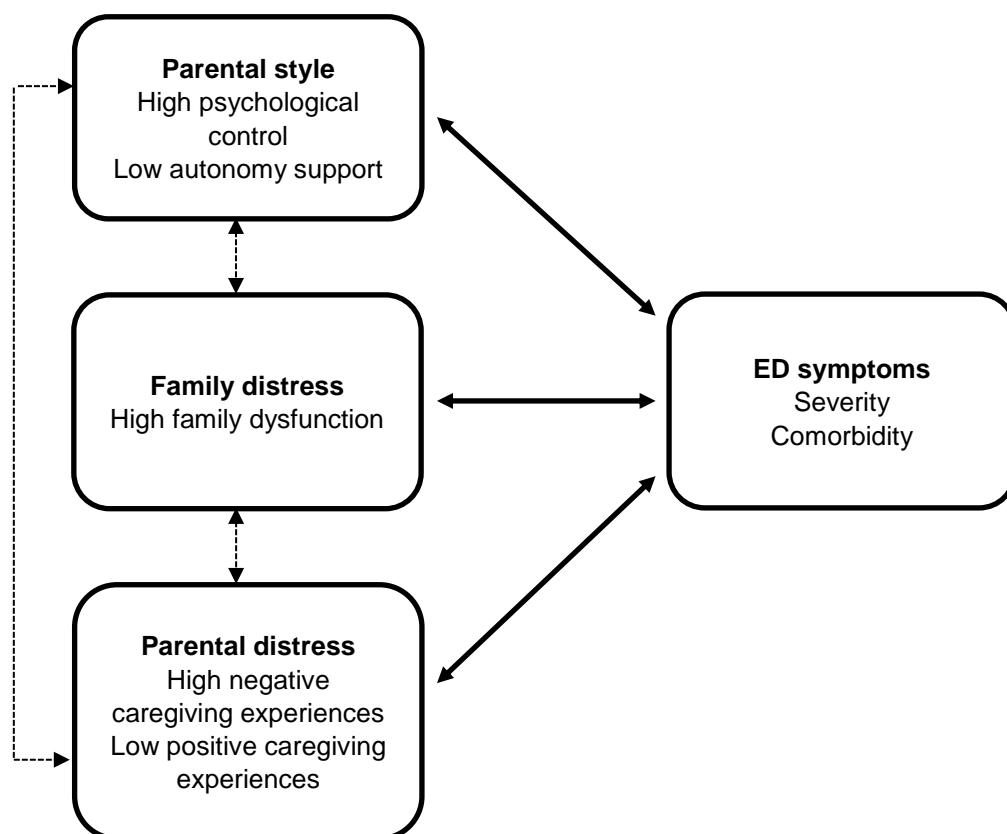
In sum, although there is evidence linking autonomy-supportive and psychologically controlling parenting – at least indirectly – to ED symptoms, it has not been examined whether these parenting variables are related to the presence of BP behaviours and/or NSSI which can be an additional source of worry and anxiety among parents. Parental feelings of worry and anxiety, in turn, are known to increase the likelihood of engaging in an autonomy-suppressing and controlling interaction style with children (e.g., Pomerantz & Eaton, 2001). Yet, because the evidence is inconclusive, more studies are required, thereby using ratings of parenting styles from multiple informants which will be one of our research aims.

2.4. First research line: Family factors in ED patients

The cognitive interpersonal maintenance model of EDs postulates that interpersonal factors within the family, together with other cognitive and socio-emotional factors, maintain the ED (Schmidt & Treasure, 2006; Treasure & Schmidt, 2013). The interpersonal component of this model suggests that parents often get stuck in unhelpful patterns of response to the illness which might inadvertently exacerbate ED symptoms (Goddart et al., 2013). In line with this model (Goddart et al., 2013), it can be assumed that specific parental reactions might have a

negative effect on ED symptoms as well, including the use of parental strategies that are characterized with high levels of ‘psychological control’ and vice versa (Goddart et al., 2013; Soenens et al., 2007; Figure 1).

Figure 1. Interplay between family factors (parental style, family distress, parental distress) and ED symptoms.



Additionally, ED patients often display a variety on additional symptoms (e.g., BP behaviours, NSSI) and there is indirect evidence suggesting that BP behaviours and NSSI might play an aggravating role in family dysfunction, parental psychological control and parental negative caregiving experiences (e.g., Wisotsky et al., 2003; Figure 1).

However, more research is needed to investigate the relationship between family processes and ED/NSSI symptoms. Therefore, in the first line of research of this dissertation, we investigate whether there exists an association between family processes and ED symptomatology. More specifically, we focus on the relation between the presence/absence

of BP behaviours and/or NSSI and family functioning of ED patients (Chapter 2), parental caregiving experiences (Chapter 3) and psychological controlling versus autonomy-supportive parenting (Chapter 4). It is hypothesized that presence of BP behaviours and/or NSSI is associated with worse family functioning (e.g., Claes, Vandereycken, & Vertommen, 2004; McDermott et al., 2002), that parents of ED patients with BP and/or NSSI experience more negative and less positive caregiving experiences (e.g., Martín et al., 2013) and that parents of ED patients with BP behaviours and/or NSSI use a more psychological controlling and less autonomy-supportive parental style compared to the parents of ED patients without BP/NSSI behaviour (e.g. Claes et al., 2012; Leung, Thomas, & Waller, 2000).

The association between EDs and impaired family functioning has led us to the development of specific family interventions. The second research line of this PhD focuses on the development and the investigation of a multi-family therapy (MFT) intervention, which may be applied with or without the ED patient in an ED unit.

3. Toward a multi-family therapy intervention for families with a patient with an ED

In this section, we start – in a first paragraph - with an overview of evidence-based treatments for patients with an ED (3.1.). In the second paragraph, we explain the theoretical base underlying the current family interventions in EDs (3.2.). In the third paragraph, we briefly discuss the outcome of single family therapy in EDs (3.3.). In the fourth paragraph, we present the developmental history and the outcome of MFT in adolescents with an ED, a specific format of family therapy (3.4.). In the fifth and final paragraph, we describe some shortcomings of the existing research and the main aims of the second line of research of this dissertation (3.5.).

3.1. Evidence-based treatments for patients with an ED

EDs are serious psychiatric conditions that require evidence-based treatment interventions (Kass, Kolko, & Wilfley, 2013). However, only about one-third of the patients with an ED is detected by healthcare (Keski-Rahkonen & Mustelin, 2016).

Different treatment interventions have been evaluated across all ED diagnoses and within different ED subtypes. Evidence-based guidelines (NICE, 2017) advice that ED patients

should be managed mainly on an outpatient basis with psychological treatment and physical monitoring.

Thus far, the following types of psychotherapy are considered as evidence-based treatments for young patients with AN (NICE, 2017): AN-focused family therapy for children and young people (FT-AN), delivered as a single-family therapy or as a combination of single and multi-family therapy, ED-focused cognitive behavioural therapy (CBT-ED) and adolescent focused psychotherapy for AN (AFP-AN). For adults with AN, no specific treatment has been shown superior (Galsworthy-Francis, & Allan, 2014; Kass, Kolko, & Wilfley, 2013). NICE guidelines (2017) recommend individual ED-focused cognitive behavioural therapy (CBT-ED), Maudsley Anorexia Nervosa Treatment for Adults (MANTRA), specialist supportive clinical management (SSCM) or ED-focused focal psychodynamic therapy (FPT).

BN-focused family therapy (FT-BN) and ED-focused cognitive behavioural therapy (CBT-ED) are the most recommended treatments for young patients with BN. For adults with BN, BN-focused guided self-help or ED-focused cognitive behavioural therapy (CBT-ED) are recommended (NICE, 2017).

For young and adult patients with BED, a binge-eating-disorder-focused guided self-help programme or an ED-focused cognitive behavioural therapy (CBT-ED) in group or individually are the recommended treatment options (NICE, 2017).

Inpatient treatment or day patient treatment should be considered for ED patients in case of a significant risk of physical health and if the patient cannot be cured in an outpatient setting. For inpatients with AN, a structured symptom-focused treatment regimen to achieve weight restoration should be provided. During refeeding, it is important to monitor the patient's physical status. A combined psychological treatment should also be provided with a focus on both eating behaviour and attitudes to weight and shape, and wider psychosocial issues (Dalle Grave, Calugi, Conti, Doll, & Fairburn, 2013; NICE, 2004). Psychiatric admission for people with bulimia nervosa should normally be undertaken in a setting with experience of managing this disorder (NICE, 2004).

3.2. Family therapy in ED patients: Theoretical framework

The assumption that caregiving difficulties may result in unhelpful reactions of parents to the ED and may contribute to family dysfunction which in turn can exacerbate ED behaviours implies that family interventions should target parental behaviour to improve the patients' outcome (Anastasiadou et al., 2014; Goddard et al., 2011). This contrasts with the historical perspective on EDs that considered family dysfunction as unidirectional related to the development of EDs. Indeed, many researchers tried to find a specific (or a combination of) family factor(s) that could explain the development of EDs. For example, Minuchin's psychosomatic family model described specific family dynamics (e.g. overprotectiveness and enmeshment) as the main process underlying the development of AN (Minuchin, Rosman, & Baker, 1978). However, current empirical evidence on family functioning does not support this model (Dare, Le Grange, Eisler, & Rutherford, 1994; Eisler, 2005). The search for an aetiological model has been largely replaced by a treatment-focused model that describes the ED as the 'central organizing principle' of the family (Eisler, 2005). This model describes organisational processes in which family life gets stuck in a vicious circle and becomes gradually monopolized by the ED. Families are influenced by the ED and are in their turn influencing the ED presentation and gradually family interactions/life will be organised around the ED (e.g., Whitney & Eisler, 2005).

The assumption that families do not cause EDs but that they may reorganize themselves in response to the ED which might maintain the ED underlies the current ED-focused family therapies (ED-FT), sometimes referred to as family-based treatment (FBT) or the Maudsley therapy. ED-FT tries to block the central role of the ED symptom in the family organization by challenging disabling family perceptions and meanings (such as their beliefs about guilt and blame), identifying the strengths of the family as a resource, and reinforcing the family adaptation processes that enable developmentally appropriate family life cycle changes. The family is explicitly involved as a resource for recovery. Problematic family relationships are treated without blame and typically only when they present barriers to recovery (Lock & LeGrange, 2015).

3.3. Single family therapy in ED patients¹

3.3.1. Single family therapy for anorexia nervosa

Studies evaluating the Maudsley approach or the Maudsley-type approach generated impressive empirical evidence for the treatment of adolescent AN (Downs & Blow, 2013; Eisler, Wallis, & Dodge, 2015). For patients with early-onset AN which has not yet become a chronic condition, this family intervention leads to a significantly better weight gain compared to individual adolescent-focused treatments (Lock et al., 2010; Russell, Szmulker, Dare, & Eisler, 1987) and this difference continues up to 5 years follow-up (Eisler et al., 1997).

In a randomized controlled trial, Lock and colleagues (2010) evaluated a Maudsley type of treatment on 121 adolescents (mean age of 14.4 years) with early onset-AN who were randomized to either a Maudsley type approach or to an adolescent-focused individual therapy (AFT; a psychodynamic individual psychotherapy also including collateral parent meetings; Robin et al., 1999). The findings showed that while both treatments led to considerable improvements, the Maudsley type family intervention was significantly more effective in facilitating full remission at both the 6- and 12-month follow-up assessments (there were no significant differences immediately after treatment). Another study based on this trial showed changes in family functioning from different family members' perspectives (Ciao et al., 2015). So, the Maudsley type intervention had a more positive impact on specific aspects of family functioning (communication, behavioural control) and led to a better psychological improvement of the ED patient compared to an adolescent-focused individual therapy (Ciao et al., 2015; Lock et al., 2010).

One study evaluated the Maudsley approach for an adult group with AN (Dare et al., 2001). In this randomized controlled trial, the Maudsley approach was compared with focal psychoanalytic psychotherapy, cognitive analytic therapy and a control group of low-contact routine treatment. This study concluded that for AN patients with a late onset age, a long illness duration and a history of unsuccessful treatment, family treatment has no specific advantage over other treatments.

¹ An overview of quantitative studies on single family therapy in ED patients is provided in Appendix B.

Madden and colleagues (2015) evaluated the Maudsley-type approach for inpatient AN adolescents in a randomized controlled trial comparing the effectiveness of hospitalization for weight restoration with hospitalization for medical stabilization in adolescents with AN (Madden et al., 2015). The main outcome of this study was the number of days of hospitalization, following initial admission. Eighty-two adolescents with AN (aged 12-18 years) were randomized to shorter hospitalization for medical stabilization (MS) or to longer hospitalization for weight restoration (WR) both followed by 20 sessions of outpatient, manualized family-based treatment (Maudsley type approach). There was no significant difference between groups in the number of hospital days following initial admission at 12-month follow-up. Thus, the weight restoration (WR) group included significantly more total hospital days and post-protocol family therapy sessions.

Other family approaches may also be effective in the treatment of adolescent AN. *Behavioural Family Systems Therapy (BFST)* is a form of family therapy that combines components of behavioural, cognitive and family systems therapy and includes the identified patient and parents in the therapy (Robin et al., 1994). Compared with an adolescent-focused individual therapy (a psychodynamic individual psychotherapy including collateral parent meetings) BFST was superior in promoting weight gain and menstrual return in adolescents with AN both at end of treatment (EOT) and at follow-up (Robin et al., 1999). A study with 25 AN patients (13 – 23 years) comparing BFST with CBT, found no significant differences between both treatments (Ball & Mitchell, 2004).

An RCT with 60 AN adolescents (13 – 19 years) showed that adding a family therapy (FT) that focuses on intra-familial dynamics, rather than on the ED, to a multidimensional program improves treatment effectiveness in adolescents with severe AN. Similar group effects were observed in terms of weight restoration (i.e., BMI \geq 10th percentile) and menstrual status. However, the program with family therapy showed significant more good or intermediate outcomes on the Morgan/Russell scores (weight greater than 85% of ideal body weight) (Godart et al., 2012; Morgan & Hayward, 1988).

3.3.2. Single family therapy for bulimia nervosa

In contrast with the substantial evidence base of the Maudsley or Maudsley-type approach for adolescents with AN, the results of this approach for adolescents with BN are rather modest.

In an RCT with 80 adolescents with BN, Le Grange and colleagues (2007) reported that an adapted Maudsley approach for adolescents with BN is more effective than an individual supportive psychotherapy in decreasing binge-eating/purging behaviour for up to 6 months after treatment. Further a recent study of Le Grange and colleagues (2015) with 130 adolescents with BN revealed that an adapted Maudsley approach was more effective in promoting abstinence from BP behaviours at end of treatment and at 6-month follow-up compared to a cognitive-behavioural therapy (CBT) adapted for adolescents. At 12-month follow-up, there were no significant differences between the two treatments (Le Grange, Lock, Agras, Bryson, & Jo, 2015). However, an adapted Maudsley approach for adolescents with BN was compared with a cognitive behavioural guided self-care programme (CBT). At 6-month follow-up, the CBT treatment initially led to a more rapid reduction of binge-eating compared to the adapted Maudsley approach but the differences disappeared at 12-months follow-up (Schmidt et al., 2007).

3.3.3. Conclusion

The Maudsley family based therapy might be the most evidence-based family therapy for adolescents with AN. Research findings suggest also promising results for an adapted Maudsley approach for adolescents with BN, although studies are rather scarce (Lock & Le Grange, 2015). However, most treatment studies focus on a decrease in ED symptomatology as outcome variable and only a minority of these studies use overall family functioning as a primary outcome variable (Ciao et al., 2014; Down & Blow, 2013). Recently, there might be a renewed interest in the evaluation of family functioning in adolescents with AN, although the focus has moved away from questions on its role in the development of the illness to its potential role as moderator or mediator of treatment outcome.

Remarkably, the influence of the presence/absence of BP behaviours and/or NSSI in ED patients is less investigated in the outcome of family treatment, although BP and NSSI behaviours are often indicators of more severe problems and decreased responsiveness to therapeutic interventions (Claes & Muehlenkamp, 2014; Vansteenkiste, Claes, Soenens, & Verstuyf, 2013). Therefore, future studies on family therapy should use additional outcome variables including overall measures of family functioning and should take comorbid ED symptoms such as BP behaviours and NSSI into account.

3.4. Multi-family therapy in eating disorders²

A specific format of family therapy is multi-family therapy (MFT), a family therapy intervention simultaneously delivered to several families, affected by a similar pathology, in a group. We briefly describe the developmental history of multi-family therapy and the current practice of multi-family therapy in EDs.

3.4.1. Developmental history of multi-family therapy

The idea of treating a number of families together was first pioneered by Laqueur and his colleagues (Laqueur, LaBurt, & Morong, 1964). In the 1950s and 1960s, Peter Laqueur worked in a New York city hospital with young patients with schizophrenia who were undergoing insulin coma therapy. While their condition improved, Laqueur noticed that patients went worse after their first home visit. Laqueur began to organize large informative question-answer meetings with the different families together without the presence of the patients, but soon with them included (Laqueur, 1976; Lemmens, 2007). The major goals of these meetings were based upon the then predominant psychodynamic theories of attachment and systemic communication theories explaining the cause of schizophrenia (Laqueur et al., 1964): Laqueur wanted to block negative communication patterns within the family and tried to create more healthy intra-familial relationships allowing a safe differentiation of its members (Laqueur et al., 1964; Lemmens, 2007).

During these meetings, Laqueur noticed how families interacted with each other and formed unprompted therapeutic groups. He began to theorize '*multiple family therapy*'. He discovered that well-known group dynamics emerged during the course of these meetings, such as joint sharing experiences, mutual support, constructive criticism and modelling, especially helpful when families with similar problems met each other. In these groups with several families together, families developed ideas of how to address chronically stuck issues. By focusing not only on their own ill relative, but also on other families, each family member could potentially re-examine their own life from different and new perspectives. The exchange of experiences with other families made it possible to compare ideas and to learn from each other (Asen, 2002).

² An overview of quantitative studies on multi-family therapy in ED patients is provided in Appendix C.

These meetings evolved to smaller open-ended MFT groups, including 4 or 5 patients together with their family (parents, siblings, spouses, children) led by a therapist and/or co-therapist in the presence of some observers (e.g., counselor trainees). The sessions of 90 minutes were organized weekly over a period of 6 to 8 months and open-ended with new families added to the group when necessary (Asen, 2002; Laqueur, 1976). The first multi-family groups were appropriately described as '*sheltered workshops in family communication*' (Laqueur et al., 1964): Families could observe improved communications and better understanding in other families and learn directly and indirectly from each other (Asen, 2002).

Laqueur's early work and his worldwide workshops inspired many clinicians. However, some major developments have been occurred since Laqueur's pioneering work (Lemmens, 2007). First, MFT was no longer used exclusively in the treatment of patients with a schizophrenic disorder and their families (e.g., Dyck et al., 2000; Leff et al., 1989; McFarlane, 2002). Since the 1950s, 1960s and 1970s, MFT became increasingly popular in a wide variety of psychiatric conditions (Gélin, Cook-Darzens, & Hendrick, 2017): including EDs (e.g., Dare & Eisler, 2000; Slagerman & Yager, 1989), major depression (e.g., Anderson et al., 1986; Lemmens et al., 2007), bipolar disorders (e.g., D'Souza, Piskulic, & Sundram, 2010), substance and alcohol abuse (e.g., Shumway, Kimball, Dakin, Baker, & Harris, 2011), borderline personality disorder (e.g., Berkowitz, & Gunderson, 2002; Fleischhaker et al., 2011), dementia (e.g., Wang & Chien, 2011), and obsessive-compulsive disorder (e.g., Barrett, Healy-Farrell, & March, 2004). But MFT gained also popularity in the treatment of patients with medical problems (Cook-Darzens, Gelin, & Hendrick, 2017): aids (e.g., Rotheram-Borus, Lee, Gwadz, & Draitmin, 2001), cancer (e.g., Chiquelholo, Neves, Mendes, Relvas, & Sousa, 2011), and chronic pain (Lemmens et al., 2005; Steinglass, 1998). MFT has also proved to be a useful approach in the treatment and management of children and adolescents (e.g., Weine et al., 2008).

Secondly, MFT has been successfully adapted to the development and changes in the mental health services. The deinstitutionalisation of care required a shift from intramural to extramural care (Lemmens, 2007). New MFT programs were developed in other clinical and non-clinical settings; for example outpatients services, day clinics, general hospitals, community mental health centres and even in school settings (Asen, 2002; O'Shea & Phelps, 1985; Strelnick, 1977). For some populations, it was found that low intensity multiple family work (i.e., one session of 2 or 3 hours weekly or monthly added to another treatment) was not

sufficient. The so-called 'multi-problem families' required more intensive therapy since these families often visited an increasing number of professionals without any improvement (Asen, 2002). The Marlborough Family Day Unit in London was the first 'family day setting', specifically designed for these multi-problem families. This family day unit was a high-intensity working setting, with up to ten families attending for eight hours a day and five days a week, often over a period of months (Asen, Dawson, & McHugh, 2003). The creation of a multiple family day clinic did not only improve the collaboration between the different involved professionals, but also offered a daily structured program to the families where they could address concrete daily issues in a therapeutic context. The program was structured in the way that every family member had to change within the space of a few hours, from being a member of one subgroup to that of another. Individuals and families had constantly to change roles and behaviours in different settings, which would prevent them to hold on to familiar patterns of interaction, and provided them with ample opportunities for experimenting with new behaviours (Asen et al., 2003; Lemmens, 2007). This multiple family day clinic format has also been applied to young ED patients (see paragraph 3.2.2.; e.g., Scholtz & Asen, 2001; Dare & Eisler, 2000).

Thirdly, MFT practice has over the years constantly integrated new therapeutic concepts in its therapeutic techniques (Lemmens, 2007). Of great importance was the new conceptualisation of health and illness and more specifically the recognition of the chronic illness as putting a great demand on families. A chronic illness was recognized as having an effect on every member of the family and the family as a unit, creating emotional and social isolation (e.g., Gonzales & Steinglass, 2002; Steinglass, 1998). Steinglass (1998) has described in detail the process of family reorganization around chronic illness in which there is an increasing disruption of family routines, of the customary family regulatory mechanisms, where day-to-day decision-making becomes more and more difficult to the point where the problem becomes the central organizing principle of the family's life (see also Eisler, 2005). These processes through which families accommodate to serious and enduring problems have been well described in relation to problem drinking (e.g., Steinglass, 1987) and chronic physical illness (e.g., Steinglass, 1998) but are also described in families living with AN patient (Eisler, 2005). Over time, the problems around eating, the anxiety and the concerns about how to manage the ED increasingly dominate every aspect of family life, every relationship in the family and every family routine (Eisler, 2005). This conceptual framework

became the theoretical base of Steinglass' multi-family model that supports families in 'finding a place for the illness in the family, while at the same time keeping the illness in its place' and to expand the social network of the families (Steinglass, 1998). Eisler also integrated the concept of 'illness as central organizing principle' in his (multi-)family model for EDs (2005). He considered MFT as an opportunity to create an excellent context to block the central role of the ED illness in families living with an ED adolescent and to form a collaborative environment, which reduces problems in staff-patients/families relationships. MFT builds on established family therapy principles and leverages alternate mechanisms of therapeutic change in ensuring symptom remission, relying more centrally on group processes that maximize families' own resources while reducing feelings of helplessness, isolation and shame (Dare & Eisler, 2000; Eisler, 2005; Eisler et al., 2016; Gísladóttir & Svararsdóttir, 2011; Scholz & Asen, 2001; Treasure et al., 2011).

3.4.2. Multi-family therapy in eating disorders

The first experiments of applying MFT to adolescents with an ED in a day setting were pioneered in Dresden (Germany; Scholz & Asen, 2001) and in London (UK; Dare & Eisler, 2000). The Dresden project started in 1998 in a child and adolescent psychiatry service which admitted about sixty severely AN and BN teenagers a year. An MFT approach carried out to be highly relevant since it directly addresses the parents' sense of struggling in isolation and having to rely heavily on the input of nurses, doctors and therapists. Since its inception in 1998, the staff of the Dresden Eating Disorder Unit has experimented with a whole range of different lengths and frequencies of the programme. The most appropriate MFT package consists of an initial evening followed by an intensive week (five days and eight hours a day) and then repeated in two whole days first monthly and later in bimonthly intervals. The Dresden project has been carried out in parallel with a similar MFT program for ED teenagers based in London at the Maudsley Hospital (Dare & Eisler, 2000). This programme started in 1999 with a four-day block followed by a whole day repeated monthly for up to six months. The overall approach in Dresden and London was remarkably similar. Both programs are very structured and require families and their individual members to constantly change context and to adapt to new demands.

Since the 1990s, clinicians in the UK and Germany also have begun to examine the benefits of these treatment groups in families with an ED adolescent (Colahan & Robinson, 2002;

Scholz et al., 2005). Only a few studies compared MFT with other interventions (Eisler et al., 2016; Gabel et al., 2014; Geist, Heinmaa, Stephens, Davis, & Katzman, 2000; Marzola et al., 2015; see Appendix C). Geist and colleagues (2000) compared eight sessions of individual family therapy with eight sessions of family group psycho-education in adolescent inpatients with AN. Both groups resulted in weight gain of the patients but the MFT group was more cost-effective. Gabel et al. (2014) compared a group of 25 adolescents with AN who received a treatment as usual (TAU) and an ED-FT plus MFT with 25 matched control cases who received only a TAU. Both groups experienced significant weight restoration, however patients enrolled in MFT were restored to a higher mean percent ideal body weight than the TAU group (99.6% ($\pm 7.27\%$) vs. 95.4 (± 6.88); $p < 0.05$). Eisler et al. (2016) conducted a multi-centre RCT of 167 adolescents with AN who were randomized to either ED-FT or to a combination of ED-FT and MFT. The adolescents in the MFT condition gained significantly more weight and a greater number of them (58% in ED-FT vs 76% in ED-FT/MFT) had achieved a good or intermediate outcome on the Morgan/Russell scores (weight greater than 85% of ideal body weight) at the end of the one year outpatient treatment (Morgan & Hayward, 1988).

Marzola et al. (2015) retrospectively examined the long-term efficacy of an intensive 5-day treatment program in both single-family (S-IFT) and multi-family (M-IFT) settings by evaluating 74 ED adolescents. Over a mean follow-up period of 30 months, 87.8% of participants achieved either full (60.8%) or partial remission (27%), while 12.2% reported a poor outcome, with both S-IFT and M-IFT showing comparable outcomes. Short-term, intensive treatments may be cost-effective and clinically useful where access to regular specialist treatment is limited.

Qualitative studies focusing on the experienced mechanisms of MFT showed that MFT for adolescents with AN helps to restore communication and connections, helps to identify disconnections and helps with identification and expression of emotions. Further sharing of experiences in intensive MFT for AN may help improve gaining insight into the disorder and instils hope. Role plays may help increase empathy and motivation, and may mobilize families for action (Tantillo, McGraw, Hauenstein, & Groth, 2015; Voriadaki, Simic, Espie, & Eisler, 2015). Hearing other families talk about how to deal with similar problems initiates an implicit learning process without the need for explicitly expressing thoughts and emotions. It helps families to broaden their own perspectives and to try out new behaviours. The

experience of communality may further reduce feelings of guilt and may improve the burden on these families leading to a better recovery process of the patients (Mehl, Tomanova, Kuběna, & Papežová, 2013; Uehare et al., 2001; Whitney et al., 2012).

3.4.3. (Multi-)family therapy with or without ED patient

Up till now, few studies about possible benefits of including or excluding the ED patient in (M)FT therapy exist. Concerning single family therapy, one study (Eisler et al. 2000; see Table 1) comparing a conjoint format of ED-FT with a separated version of ED-FT (patient and parents attended different sessions) pointed to better outcomes in the separate format when families show high maternal criticism. No outcome research in MFT is available. A qualitative study of Whitney et al. (2012) comparing the effectiveness and acceptability of family workshops with educational and skills-based components with individual family work, showed that there were conflicting views about this topic: some caregivers expressed that it was helpful to have some sessions without the patients since this allowed them to express the difficulties and frustrations without feeling guilty. Other caregivers felt that it would have been helpful for patients to be present during more of the sessions or that the inclusion and exclusion of the patients for individual tasks may have been uncomfortable for the patients. Further, psycho-educational and skills training for ED caregivers without presence of the patients have positive effects in stress reduction and decreasing of difficulties inherent in caring for a relative with an ED (Sepúlveda, Lopez, Todd, Whitaker, & Treasure, 2008; Uehare et al., 2001; Zucker, Ferriter, Best, & Brantley, 2005). However, as far as we know, no study focused on the effects of including/excluding ED patients in a MFT intervention, which is one of the aims of this dissertation.

3.5. Second research line: Development and outcome of a multi-family therapy intervention for ED adolescents

The research presented in this dissertation is conducted at the Eating Disorders Unit, Psychiatric Hospital Alexianen Tienen (Belgium), which offers an inpatient treatment for 35 female adolescents and young adults with an age of 14.5 and older. To involve families more closely in the inpatient care for adolescents, an important aim of this dissertation is to develop a multi-family intervention during the inpatient treatment for adolescents with an ED. The original MFT at this unit in 2002 was conducted as a 3 sessions group format focusing on

supporting parents in dealing with mealtimes, which are often a battlefield in ED families. These group consisted of four or five families (parents with their daughter with ED and no siblings). Sessions were scheduled on Monday evenings so that weekend difficulties could be discussed, with an interval of two weeks between sessions (Noorduin & Vandereycken, 2002). Responses from patients and families were extremely positive, but most of them felt that the program was too short for their needs. Therefore, the format was reconsidered and extended to a format with 6 sessions which is applicable with (MFT) or without patient (MPT) participation.

The second line of research in this dissertation focuses on the development and outcome of this 'new' MFT program which is applicable with (MFT) or without patient (MPT) participation (Chapter 5). Next, we aim to examine – in a pilot study - whether the presence/absence of the ED patients during MFT influences different outcome variables, such as ED symptoms, family functioning and parental caregiving experiences using a multi-informant approach and taking presence/absence of BP behaviours and NSSI into account (Chapter 6). Thereby is hypothesized that families of patients with BP behaviours improve more during a parents-only intervention whereas families of restrictive patients benefit more from a conjoint MFT intervention. This hypothesis is based on the evidence showing higher maternal criticism in families of BN patients compared to families of AN patients (Rienecke et al., 2016; Tozzi et al., 2005) and on the findings that families with high maternal criticism improve more with separate single family therapy than with conjoint single family therapy (Eisler, 2000).

4. Overview of the dissertation

This dissertation consists of a general introduction (Chapter 1), five manuscripts published or accepted for publication (Chapter 2 – 6) and a general discussion (Chapter 7) (see Table 1). The studies in Chapter 2 to 6 are written in a way that they can be independently read, due to publication of each study in peer-reviewed international journals. This may cause some overlap in the review of the literature. In Chapter 1, a general introduction is provided about EDs, the role of family factors in it and the use of multi-family therapy in EDs based on the existing literature. Chapter 2 presents a study on the role of BP behaviours and/or NSSI in family functioning of ED patients. Chapter 3 addresses the role of BP behaviours and/or NSSI on parental caregiving experiences among mothers and fathers of ED patients. Chapter 4

addresses parental autonomy-support and psychological control in ED patients with and without BP behaviours and/or NSSI. In Chapter 5 we present the development of an MFT intervention adjunctive to an inpatient treatment program for ED patients. The therapeutic model of the group and its consequences for the role of parents in the treatment of EDs is described. Also the process of the MFT intervention is explained. Chapter 6, describes a pilot study, in which we compare the outcome of this intervention with or without patient participation with regard to ED symptoms, family functioning and parental caregiving experiences using a multi-informant approach and taking the influence of the presence/absence of BP behaviours and NSSI into account. For an overview of all the studies (i.e., study design, participants, age range, diagnoses) we refer to Table 1. In Chapter 7, the discussion, we link our findings to the existing (inter)national literature, we discuss the strengths and the limitations of our studies and give suggestions for further research. We finalize with a discussion of the clinical implications of our studies.

Table 1. Overview of the samples and designs used in the different empirical chapters

	Running head	Study design	Participants	Age	Data-analyse
Chapter 2	Family functioning in EDs	Cross-sectional	Patients ($N = 123$) Mothers ($N = 98$) Fathers ($N = 79$)	14-24 years ($M = 18.2$, $SD = 2.07$)	Three separate multivariate analyses of covariance (MANCOVAs)
Chapter 3	Caregiving experiences in EDs	Cross-sectional	Mothers ($N = 65$) Fathers ($N = 65$)	14-25 years ($M = 18.3$; $SD = 2.31$)	Two separate multivariate analyses of covariance (MANCOVAs)
Chapter 4	Parental style in EDs	Cross-sectional	Patient - mother dyads ($N = 53$) Patient - father dyads ($N = 37$)	14-25 years ($M = 17.98$, $SD = 2.45$)	Two separate Repeated Measures Analyses of Covariance (RM ANCOVAs)
Chapter 6	Outcome MFT (*)	Pre-post design	Patients – mothers – fathers ($N = 112$)	14-21 years ($M = 17.06$; $SD = 2.15$)	A series of linear mixed model analyses

(*) The MFT intervention is described in detail in Chapter 5

5. References

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PART I: FAMILY INTERACTIONS IN EATING DISORDERS

CHAPTER 2

The role of non-suicidal self-injury and binge-eating/purging behaviours in family functioning in eating disorders³

This study aimed to investigate family functioning of restrictive and binge/eating-purging eating disordered adolescents with or without non-suicidal self-injury (NSSI), as perceived by the patients and their parents (mothers and fathers). In total, 123 patients (between 14 and 24 years), 98 mothers and 79 fathers completed the Family Assessment Device. Patients completed the Self-Injury Questionnaire-Treatment Related and the Symptom Checklist 90-Revised. No main effects were found of restrictive vs binge-eating/purging behaviour nor of presence/absence of NSSI. For the parents, a significant interaction between binge-eating/purging behaviour and NSSI emerged: Mothers and fathers reported worse family functioning in the binge-eating/purging group in presence of NSSI, whereas mothers reported worse family functioning in the restrictive group without NSSI. Parental perception of family functioning is affected by the combined presence of binge-eating/purging behaviour and NSSI. This finding should be taken into account when treating families living with eating disorders.

Introduction

An important body of evidence shows that family functioning is worse in families with an adolescent suffering from an eating disorder (ED) compared to families without one. Overall, ED families show more problems. However, a typical pattern of family functioning in ED families could not be identified mainly due to a large variety and inconsistency of reported results in different studies (Holtom-Viesel & Allan, 2013).

Similar conclusions can be drawn from studies comparing family functioning between ED diagnostic subtypes such as anorexia nervosa (AN) or bulimia nervosa (BN). At one hand, AN families reported more cohesion compared to BN families (Kog & Vandereycken, 1989).

³ Depestele, L., Claes, L., Dierckx, E., Baetens, I., Schoevaerts, K., & Lemmens, G. (2015). The Role of Non-Suicidal Self-Injury and Binge-Eating/Purging Behaviours in Family Functioning in Eating Disorders. *European Eating Disorders Review*, 23, 413-416. doi: 10.1002/erv.2371

Problem solving, role performance, and affective involvement as well as behavioural control are found to be lower in BN families (Fornari et al., 1999). On the other hand, a large number of studies did not find differences in family functioning between AN and BN families (Dancyger, Fornari, Scionti, Wisotsky, & Sunday, 2005; McDermott, Batik, Roberts, & Gibbon, 2002).

More recently, some studies pointed to the possible role of different eating and non-eating related behaviours such as binge-eating/purging versus restrictive behaviour and non-suicidal self-injury (NSSI) in family functioning in eating disorders. Although McDermott and colleagues (2002) reported no differences in family functioning between AN and BN families, binge-eating/purging families showed more difficulties with planning of family activities and with confiding in each other compared to restrictive families. Moreover, AN patients with binge-eating/purging behaviour report more problems with task accomplishment, affective expression and affective involvement compared to those without these behaviours (Casper & Troiani, 2001). Further, ED patients with NSSI experience a less cohesive, expressive and socially oriented family environment and describe higher levels of family conflict compared to patients without NSSI (Claes, Vandereycken, & Vertommen, 2006).

The aim of the current study is to investigate differences in family functioning between restrictive and binge-eating/purging patients with or without NSSI, hypothesizing that families of binge-eating/purging and/or NSSI patients would report worse family functioning. Hereby, the perception of patients, mothers and fathers are separately investigated since family functioning may differ between informants' perspectives (Dancyger et al., 2005). Further, the patients' psychopathology has been controlled in all analyses because of its association with poor family functioning (Fornari et al., 1999).

Method

Participants

Participants were recruited from families of whom the adolescent was admitted to a specialized unit for eating disorders and was actually living with the parent(s). In total, 123 families were included in this study (123 female patients, 98 mothers and 79 fathers). The mean age of the patients, the mothers and the fathers was respectively 18.2 years ($SD = 2.07$), 48.2 years ($SD = 3.50$) and 49.2 years ($SD = 3.35$). Of all families 66% ($N = 81$) were

intact, 3% ($N = 4$) were single parent families after loss of a parent and 31% ($N = 38$) were divorced. Of the divorced families 10,5% ($N = 4$) were both single parents and 89,5% ($N = 34$) were reconstituted families (at least one of the parents was having a new relationship). All patients were assessed by the psychiatrist of the unit using a clinical interview according to the Fourth Edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; APA, 1994) criteria, supplemented with the Eating Disorder Evaluation Scale (EDES; Vandereycken, 1993). Of the 123 patients, 43% were diagnosed as anorexia restrictive (AN-R) type, 25% as anorexia binge-eating/purging (AN-BP) type and 32% as bulimia nervosa (BN).

Patients were further clustered in two subgroups: 43% restrictive AN patients ($N = 53$) versus 57% patients with BP behaviour ($N = 71$). No significant age difference was found between both subgroups [$F(1, 121) = 0.85$, *ns*]. Proportion of mothers and fathers did not differ between both ED groups ($\chi^2_{(1)} = 0.53$, $p = 0.47$) and between the NSSI and non-NSSI group ($\chi^2_{(1)} = 0.03$, $p = 0.86$).

Seventy per-cent of the patients ($N = 86$) reported at least one type of NSSI, whereas 30% of the patients ($N = 37$) did never engage in NSSI. The presence of NSSI was significantly higher in binge-eating/purging patients (83%) compared to restrictive AN patients (53%) ($\chi^2_{(1)} = 11.89$, $p < 0.01$).

Procedure

All patients and parents completed an online survey during the first 3 weeks of admission after given a written informed consent. The study was approved by the Ethical Committee of the Hospital.

Measures

Patients were invited to complete the Dutch version of the Family Assessment Device (FAD), the Self-Injury Questionnaire-Treatment Related (SIQ-TR), and the Symptom Checklist 90-R (SCL 90-R), whereas the parents were invited to complete the FAD.

The FAD (Epstein, Baldwin, & Bishop, 1983; Dutch version: Wenniger, Hageman, & Arrindell, 1993) is a 60-item self-report questionnaire assessing family functioning. It has 7 subscales:

Problem-solving, Communication, Roles, Affective Responsiveness, Affective Involvement, Behaviour Control and General Functioning. Higher scores on these scales represent higher levels of unhealthy family functioning. In the present study Cronbach's alpha coefficients ranged from 0.68 (Affective Involvement) to 0.91 (General Functioning).

The SIQ-TR (Claes & Vandereycken, 2007) is a self-report questionnaire assessing the presence of five specific NSSI behaviours: biting, scratching, bruising, cutting or burning oneself. An ED patient was assigned to the NSSI group when she answered to have engaged in at least one type of NSSI during life-time. Cronbach's alpha coefficient of the SIQ-TR in the present study was 0.66.

The SCL-90-R (Dutch version: Arrindell & Ettema, 2003) is a 90-item measure assessing a wide array of psychiatric symptoms. In our study only the total score, called psychoneuroticism, was used as a measure for general psychopathology. Cronbach's alpha coefficient of this global measure in the present study was 0.97.

Data Analyses

Of the 123 patients 103 patients completed the FAD and all 123 patients completed the SIQ-TR and the SCL-90-R. The FAD was completed by 98 mothers and 79 fathers. To explore the differences in family functioning between restrictive and binge-eating/purging families with or without NSSI a multivariate analyses of covariance was performed using the seven subscales of the FAD as dependent variables, the presence/absence of binge-eating/purging behaviour, the presence/absence of NSSI and their interaction (BP*NSSI) as independent variables and psychopathology as control variable. Since patients, mothers and fathers did not significantly differ on all FAD subscale scores except for General Functioning [Wilks' $\lambda = 0.83$, $F(14,542) = 3.80$, $p < 0.001$] the MANCOVA was performed separately for patients, mothers and fathers. In none of the analyses the covariate was significant.

All analyses were performed by means of SPSS version 22.

Results

The MANCOVA with the patients' perception of family functioning as dependent variables showed no main effects of binge-eating purging behaviour [Wilks' $\lambda = 0.93$, $F(7, 92) = 1.03$,

ns] and NSSI [Wilks' $\lambda = 0.97$, $F(7, 92) = 0.97$, *ns*] nor a significant interaction between both [Wilks' $\lambda = 0.95$, $F(7, 92) = 0.69$, *ns*] (see Table 1).

Table 1 Means (standard deviations) on the FAD subscales of ED patients with and without NSSI, controlled for psychoneuroticism ($N = 103$)

FAD subscale	Restrictive group (AN-R)			Binge-eating / purging group (BP-ED)			F-test		
	No NSSI $N = 21$	NSSI $N = 23$	Total $N = 44$	No NSSI $N = 11$	NSSI $N = 48$	Total $N = 59$	AN-R vs BP-ED	NSSI vs no NSSI	Interaction ED group/ NSSI
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)			
Problem Solving	2.17 (0.56)	2.15 (0.55)	2.16 (0.55)	2.32 (0.52)	2.47 (0.55)	2.44 (0.54)	2.07	0.32	1.02
Communication	2.20 (0.55)	2.25 (0.58)	2.23 (0.56)	2.26 (0.62)	2.44 (0.57)	2.41 (0.58)	0.37	0.80	0.58
Roles	2.08 (0.44)	2.10 (0.52)	2.09 (0.47)	2.13 (0.42)	2.35 (0.50)	2.31 (0.49)	0.83	1.18	1.43
Affective Responsiveness	2.13 (0.66)	2.06 (0.57)	2.10 (0.61)	2.26 (0.58)	2.47 (0.55)	2.43 (0.56)	2.55	0.32	1.90
Affective Involvement	1.97 (0.43)	2.01 (0.49)	1.99 (0.46)	2.10 (0.55)	2.29 (0.39)	2.25 (0.43)	1.94	1.36	1.57
Behavioural Control	1.89 (0.37)	1.95 (0.51)	1.92 (0.45)	2.04 (0.41)	2.08 (0.43)	2.07 (0.42)	0.98	0.23	0.03
General Functioning	1.90 (0.66)	1.88 (0.56)	1.89 (0.60)	1.97 (0.64)	2.26 (0.60)	2.21 (0.61)	0.98	1.04	2.70

The MANCOVA with the mothers' perception of family functioning as dependent variables showed no main effect of binge-eating purging behaviour [Wilks' $\lambda = 0.93$, $F(7, 87) = 0.93$, *ns*], nor of NSSI [Wilks' $\lambda = 0.95$, $F(7, 87) = 0.68$, *ns*]. However, a significant interaction effect between binge-eating purging behaviour and NSSI was found for all subscales of the FAD [Wilks' $\lambda = 0.83$, $F(7, 87) = 2.46$, $p < 0.05$] (see Table 2). Mothers reported significant more problems with problem solving ($p < 0.05$), role performance ($p < 0.01$), affective involvement ($p < 0.05$), behavioural control ($p < 0.05$) and general functioning ($p < 0.05$) in binge-eating/purging patients with NSSI compared to those without NSSI; whereas they reported significant better problem solving ($p < 0.01$), communication ($p < 0.05$), role performance ($p < 0.01$), affective responsiveness ($p < 0.01$) and general functioning ($p < 0.05$) in restrictive patients with NSSI compared to those without NSSI.

Table 2. Means (standard deviations) on the FAD subscales of mothers of ED patients with and without NSSI, controlled for psychoneuroticism (N = 98)

	Restrictive group (AN-R)			Binge-eating / purging group (BP –ED)			F-test		
	No NSSI N = 21	NSSI N = 22	Total N = 43	No NSSI N = 12	NSSI N = 43	Total N = 55			
FAD subscale	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	AN-R vs BP- ED	NSSI vs no NSSI	Inter- action ED group /NSSI
Problem Solving	2.12 (0.34)	1.79 (0.40)	1.95 (0.40)	1.94 (0.26)	2.21 (0.38)	2.15 (0.37)	1.84	0.13	12.27**
Communication	2.18 (0.43)	1.87 (0.33)	2.02 (0.41)	1.92 (0.44)	2.19 (0.42)	2.13 (0.43)	0.00	0.21	11.62**
Roles	2.16 (0.36)	1.85 (0.32)	2.00 (0.37)	1.92 (0.27)	2.21 (0.31)	2.15 (0.32)	0.71	0.03	16.41***
Affective Responsiveness	2.17 (0.45)	1.79 (0.44)	1.98 (0.48)	2.10 (0.28)	2.19 (0.54)	2.17 (0.50)	1.56	1.98	5.45*
Affective Involvement	2.04 (0.41)	1.84 (0.38)	1.94 (0.40)	1.92 (0.32)	2.16 (0.38)	2.11 (0.38)	0.69	0.01	8.32**
Behavioural Control	1.80 (0.38)	1.68 (0.34)	1.74 (0.36)	1.80 (0.20)	2.04 (0.37)	1.98 (0.35)	2.75	0.25	7.73**
General Functioning	2.01 (0.53)	1.67 (0.45)	1.83 (0.52)	1.78 (0.30)	2.13 (0.48)	2.06 (0.47)	0.76	0.00	11.67***

* $p < 0.05$., ** $p < 0.01$., *** $p < 0.001$

The fathers' perception of family functioning showed no main effect of binge-eating/purging behaviour [Wilks' $\lambda = 0.82$, $F(7, 68) = 2.11$, *ns*] nor of NSSI [Wilks' $\lambda = 0.83$, $F(7, 68) = 2.03$, *ns*]. Again, a significant interaction between binge-eating/purging behaviour and NSSI emerged [Wilks' $\lambda = 0.79$, $F(7, 68) = 2.56$, $p < 0.05$] (see Table 3).

Fathers reported significant worse general functioning ($p < 0.05$) in binge-eating/purging ED patients with NSSI compared to those without NSSI; whereas they reported no differences in restrictive patients with NSSI compared to those without NSSI.

Table 3 Means (standard deviations) on the FAD subscales of fathers of ED patients with and without NSSI, controlled for psychoneuroticism (N = 79)

FAD subscale	Restrictive group (AN-R)			Binge-eating / purging group (BP –ED)			F-test		
	No NSSI N = 18	NSSI N = 21	Total N = 39	No NSSI N = 9	NSSI N = 31	Total N = 40	AN-R vs BP- ED	NSSI vs no NSSI	Inter- action EDgroup /NSSI
Problem Solving	M (SD) 2.04 (0.28)	M (SD) 2.01 (0.50)	M (SD) 2.02 (0.41)	M (SD) 1.83 (0.31)	M (SD) 2.15 (0.55)	M (SD) 2.08 (0.52)	0.18	1.50	2.77
Communication	2.22 (0.45)	1.99 (0.46)	2.10 (0.46)	1.90 (0.33)	2.20 (0.45)	2.13 (0.44)	0.55	0.05	7.12**
Roles	1.94 (0.27)	1.93 (0.51)	1.94 (0.41)	2.04 (0.38)	1.99 (0.37)	2.00 (0.37)	0.48	0.14	0.01
Affective Responsiveness	2.08 (0.51)	2.00 (0.59)	2.04 (0.55)	1.98 (0.48)	2.18 (0.49)	2.13 (0.49)	0.00	0.10	1.92
Affective Involvement	1.96 (0.38)	2.00 (0.38)	1.98 (0.37)	1.59 (0.39)	1.97 (0.42)	1.88 (0.44)	4.64	4.25	3.47
Behavioral Control	1.76(0.34)	1.95 (0.51)	1.86 (0.44)	1.67 (0.23)	1.78 (0.39)	1.76 (0.36)	1.67	2.25	0.08
General Functioning	1.96 (0.41)	1.83 (0.62)	1.89 (0.53)	1.55 (0.28)	1.99 (0.54)	1.89 (0.53)	1.43	1.23	6.10*

* $p < 0.05$., ** $p < 0.01$

Discussion

The most important finding in this study is that parents of binge-eating/purging ED patients report worse family functioning in the presence of NSSI compared with the absence of NSSI. Contrary, in families with a restrictive ED patient, fathers report no differences in family functioning and mothers tend to be less critical of problem solving, communication, role performance, affective responsiveness and general functioning in presence of NSSI compared with the absence of NSSI. The latter finding is in line with a study of Gowers and North (1999) who also found an inverse association between the extent of family difficulties and severity of AN. However, in their study ‘weight’ and not ‘NSSI’ was considered as an indication of AN severity.

A difference in the nature of NSSI in binge-eating/purging compared with restrictive patients may explain the different association between NSSI and parental perceived family functioning in both ED subgroups: NSSI in binge-eating/purging patients tend to be more ‘impulsive’ (e.g. cutting, burning, bruising) in nature whereas NSSI in restrictive patients tend to be more

‘compulsive’ (e.g. biting, scratching) in nature (Claes, Fagundo et al., 2015; Favaro & Santonastaso, 2000). In our sample ‘cutting’ was significantly more reported by binge-eating/purging patients (80%) compared to ‘restrictive’ patients (49%) ($\chi^2_{(1)}=10.29, p < 0.01$) whereas other types of NSSI behaviours did not differ in both ED groups. Impulsive NSSI is likely to be more noticed by the parents, and therefore probably more disturbing the family climate than more ‘secretly’ compulsive NSSI.

Our findings have some important clinical implications. Although ED focused family therapy has a strong evidence base for treatment of EDs in adolescents, the simultaneous occurrence of binge-eating/purging behaviour and NSSI in the ED patient entails some challenges or complicate ED focused family therapy. The higher prevalence of NSSI in binge-eating/purging patients is associated with more family dysfunction and these families seem to benefit less from the traditional ED focused family therapies (Downs & Blow, 2013). Therefore, family therapy here should not only focus on BP behaviour but also target NSSI.

Our study shows some limitations, which need to be addressed. A major limitation is the lack of a healthy control group. Moreover, due to the cross-sectional design of the study, it is difficult to draw any conclusion about the causal relationship of our results. The inclusion of more severely and acutely ill, hospitalized patients may explain the high prevalence of NSSI in our sample (70%), compared to most other studies : (40.8% in Peebles, Wilson, & Lock, 2011 and 59% in Claes, Luyckx et al., 2015) but makes comparison with other studies difficult. Further, parental awareness of NSSI was not investigated in our study which makes it difficult to draw any conclusion about the underlying family dynamics. Finally, the small sample size warrants the generalizability of our results. However, this was the first study investigating the association between NSSI and the perception of family functioning in both ED patients and their parents. Longitudinal research in larger ED samples with and without NSSI is needed to examine the causal relationship between family dysfunction and NSSI/ binge-eating/purging behaviours and to understand if family functioning has a prognostic value for treatment outcome.

Conclusion

In sum, our findings suggest different family functioning in restrictive and binge-eating/purging families in presence of NSSI: parents of binge-eating/purging patients are more negative

about their family functioning whereas this is not the case for parents of restrictive patients. Family therapy in ED patients should therefore address NSSI and binge-eating/purging behaviours.

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CHAPTER 3

The role of non-suicidal self-injury and binge-eating/purging behaviours in the caregiving experience among mothers and fathers of adolescents with eating disorders⁴

This study investigated the caregiving experiences of mothers and fathers of restrictive and binge-eating/purging eating disordered (ED) inpatients with and without non-suicidal self-injury (NSSI). Sixty-five mothers and 65 fathers completed the Experience of Caregiving Inventory. All inpatients completed the Self-Injury Questionnaire-Treatment Related to assess NSSI and the Eating Disorder Evaluation Scale to assess eating disorder symptoms. Mothers reported significant more negative and more positive caregiving experiences compared with fathers. Mothers (but not fathers) of restrictive ED patients reported more positive caregiving experiences compared with mothers of binge-eating/purging patients. The presence of NSSI in ED patients was associated with more negative caregiving experiences of both parents. Mothers and fathers of ED inpatients differ in caregiving experiences and both binge-eating behaviours and NSSI negatively affect their caregiving experience. Therefore supportive interventions for parents of ED patients are necessary, especially of those patients who engage in NSSI.

Introduction

Eating disorders (ED) in adolescents have a major impact on parents' caregiving experiences because of the early age of onset, the severity of the symptoms, the prolonged course of the illness and the high psychiatric and somatic co-morbidity. Besides a worse quality of life and more psychological distress, carers of ED patients report more caregiving difficulties (e.g. experiencing shame or self-blame) compared with parents of healthy controls (Kyriacou, Treasure, & Schmidt, 2008). Carers of patients with anorexia nervosa (AN) experience more caregiving difficulties (e.g. feelings of 'loss') than carers of psychotic patients (Treasure et al.,

⁴ Depestele, L., Lemmens, G., Dierckx, E., Baetens, I., Schoevaerts, K., & Claes, L. (2016). The Role of Non-suicidal Self-Injury and Binge-Eating/Purging Behaviours in the Caregiving Experience Among Mothers and Fathers of Adolescents with Eating Disorders. *European Eating Disorders Review*, 24, 257-260. doi: 10.1002/erv.2428

2001). Nevertheless, how parents of ED patients experience their caregiving situation depends on several factors. Caregiving experiences are worse when parents have a higher need for information, have less social support, when illness duration is longer and when spending more time with their child (Whitney, Haigh, Weinman, & Treasure, 2007; Winn et al., 2007). Also, gender of the parent plays a role in caregiving experiences. Mothers tend to experience the caregiving situation more negatively compared with fathers (Anastasiadou, Medina-Pradas, Sepúlveda, & Treasure, 2014). Mothers of AN inpatients also spent more time with caregiving and tend to experience a higher nutritional burden and guilt compared with fathers (Raenker et al., 2013).

The role of specific eating and non-eating related symptoms in parental caregiving experiences is less investigated. Studies comparing the caregiving experiences between parents of AN versus bulimia nervosa (BN) patients found that carers of AN patients experience higher levels of subjective burden, have more concerns about the chronic course of the illness and the patient's future and express more need for professional support compared with parents of BN patients (Graap et al., 2008). Sepúlveda et al. (2014) found that binge-eating/purging behaviours (BP) across all ED diagnoses predict more psychological distress among caregivers. Although ED patients often engage in non-suicidal self-injury (NSSI), by our knowledge, no study investigated caregiving experiences of ED caregivers in the presence/absence of NSSI. However, NSSI in ED patients with BP behaviours negatively affects the family and NSSI in non-ED samples is associated with more parental burden and less parenting confidence (Arbuthnott & Lewis, 2015; Depestele et al., 2015).

This study investigates differences in negative and positive caregiving experiences between mothers and fathers of ED patients with or without NSSI or BP behaviours. Hereby, it was hypothesized that mothers would report worse caregiving experiences compared with fathers and that parents of restrictive patients and/or patients with NSSI would appraise the caregiving situation as more negative.

Method

Participants

This study included 65 female patients and their parents, all living together. The patients (age range 14-25 years) were admitted to a specialized treatment unit for eating disorders.⁵ As divorce is associated with worse caregiving experiences (Padierna et al., 2013), only intact families ($N = 65$) were included in this study. The mean age of the patients, the mothers and the fathers was 18.3 years ($SD = 2.31$), 48.4 years ($SD = 3.75$) and 49.7 years ($SD = 3.33$), respectively. Demographic characteristics of the fathers/mothers are described in Table 1.

Table 1. Demographic characteristics of the mothers ($N = 65$) and the fathers ($N = 65$)

	Mothers ($N = 65$)		Fathers ($N = 65$)	
	<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)
Age mean (SD)	48.44	(3.75)	49.67	(3.33)
	<i>N</i>	(%)	<i>N</i>	(%)
Education				
Primary	1	(1.5)	0	(0)
Secondary	15	(23.1)	15	(23.1)
Higher education	32	(49.2)	24	(36.9)
University	11	(16.9)	20	(30.8)
Missing values	6	(9.2)	6	(9.2)
Employment				
Paid employed	51	(78.5)	59	(90.8)
Unemployed/homemaker/ sick/retired	10	(15.4)	1	(1.5)
Missing values	4	(6.1)	5	(7.7)

Of the 65 patients, 51 % ($N = 33$) were diagnosed with AN restrictive type (AN-R), 31 % ($N = 20$) as AN binge-eating/purging type (AN-BP) and 18 % ($N = 12$) with BN using the Eating Disorder Evaluation Scale (EDES; Vandereycken, 1993). The mean BMI of the AN-R, the AN-BP and the BN patients was 14.7 ($SD = 1.53$), 15.3 ($SD = 1.43$) and 22.3 ($SD = 2.48$), respectively. Patients were assigned to two subgroups: 51% restrictive patients ($N = 33$) versus 49% BP patients ($N = 32$).

⁵ Eating Disorders Unit, Psychiatric Hospital Alexianen Tienen, Belgium

Sixty-six per cent of the patients ($N = 43$) reported lifetime presence of at least one type of NSSI, whereas 34% of the patients ($N = 22$) never engaged in NSSI. Presence of NSSI did not significantly differ between BP patients (75%) and restrictive AN patients (57.6%) ($\chi^2_{(1)} = 2.20$, *ns*). Patients' age and illness duration did not significantly differ between the two subgroups (Table 2).

Table 2. Clinical characteristics of the patients ($N = 65$)

	Restrictive group (AN-R) ($N = 33$)		Binge-eating/purging group (BP-ED) ($N = 32$)		
	<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)	<i>t</i> -test AN-R vs BP-ED
Age	17.9	(2.09)	18.6	(2.51)	1.20
BMI	14.7	(1.53)	17.9	(3.88)	4.48****
Illness duration (years)	2.8	(1.84)	3.2	(2.53)	0.79
	<i>N</i>	(%)	<i>N</i>	(%)	$\chi^2_{(1)}$ AN-R vs BP-ED
Lifetime presence of					
NSSI	19	(57.6)	24	(75.0)	2.20
Scratching	13	(39.4)	14	(43.8)	0.13
Biting	4	(12.1)	6	(18.8)	0.55
Bruising	10	(31.3)	8	(25.0)	0.31
Cutting	12	(36.4)	15	(46.9)	0.74
Burning	2	(6.1)	1	(3.1)	0.32

**** $p < 0.0001$

Procedure

All participants completed an online survey during the first three weeks of admission after giving an informed consent. The study was approved by the Ethical Committee of the hospital.

Measures

Parents completed the Dutch version of the *Experience of Caregiving Inventory* (ECI; Szmukler et al., 1996). The ECI measures the experiences of caring for an individual with a severe mental illness. It consists of 66 items to be scored on a 5-point rating scale (0 = *no difficulties* and 4 = *severe difficulties*). Items are grouped in two dimensions: Fifty-two items measure the negative appraisal of care ('total negative scale') and 14 items measure the

positive appraisal of care ('total positive scale'). Higher scores on these scales indicate, respectively, more negative or positive caregiving experiences. In the present study, Cronbach's alphas of the ECI negative and positive scales were, respectively, 0.88 and 0.82.

The *Self-Injury Questionnaire-Treatment Related* (SIQ-TR; Claes & Vandereycken, 2007) measures the presence of five specific NSSI behaviours: biting, scratching, bruising, cutting or burning oneself. A patient was assigned to the NSSI group when she answered to have engaged in at least one type of NSSI during life-time. Cronbach's alpha coefficient of the SIQ-TR behaviours in the present study was 0.70.

Data analyses

Differences in caregiving experiences between mothers and fathers were explored by performing a multivariate analysis of variance, using the ECI total scores as dependent variables and informant (mother vs. father) as independent variable. To explore the differences in parental caregiving experiences between restrictive and BP patients with or without NSSI, a multivariate analysis of covariance (MANCOVA) was performed using the ECI total scores as dependent variables; the presence/absence of NSSI, ED subgroup and their interaction (NSSI*ED subgroup) as independent variables; and the patients' age as control variable because of its association with burden of caregiving (Martín et al., 2013). Finally, assuming that mothers and fathers significantly differ on the ECI total scores, the analyses were performed separately for mothers and fathers.

All analyses were performed by means of SPSS version 22. A type one error of .05 was used throughout all analyses.

Results

Both the negative and positive ECI total scores significantly differed between mothers and fathers [Wilks' $\lambda = 0.89$, $F(2, 127) = 7.71$, $p < 0.01$]. Mothers reported more negative as well as more positive caregiving experiences compared with fathers (Table 3).

Table 3 Means (standard deviations) of the ECI total scores of mothers (N = 65) and fathers (N = 65) of ED patients

ECI total score	Mothers (N = 65)		Fathers (N = 65)		F-test
	M	(SD)	M	(SD)	
ECI negative	100.2	(23.00)	86.80	(27.25)	9.18**
ECI positive	29.18	(7.16)	24.98	(7.18)	11.15**

** $p < 0.01$

The MANCOVA with the mothers' ECI total scores as dependent variables and NSSI and ED subgroup as independent variables showed a main effect of ED subgroup [Wilks' $\lambda = 0.88$, $F(2, 59) = 4.15$, $p < 0.05$] on the positive ECI total score: the mothers of restrictive patients reported significant more positive caregiving experiences compared with the mothers of BP patients. The effect of the presence/absence of NSSI was not significant but approached a significant trend [Wilks' $\lambda = 0.90$, $F(2, 59) = 3.04$, $p = 0.055$]: mothers tended to report more negative caregiving experiences when their daughter engaged in NSSI compared with those without NSSI. No interaction between ED subgroup and NSSI emerged [Wilks' $\lambda = 0.98$, $F(2, 59) = 0.74$, *ns*] (Table 4).

The MANCOVA with the fathers' total ECI scores as dependent variables and NSSI and ED subgroup as independent variables showed no main effect of ED subgroup [Wilks' $\lambda = 0.99$, $F(2, 59) = 0.37$, *ns*] nor an interaction effect between ED subgroup and NSSI emerged [Wilks' $\lambda = 0.94$, $F(2, 59) = 1.83$, *ns*]. A significant main effect of NSSI was found for the ECI negative total score [Wilks' $\lambda = 0.89$, $F(2, 59) = 3.74$, $p < 0.05$]: fathers reported more negative caregiving experiences if their daughter engaged in NSSI compared with those without NSSI (see Table 5).

For mothers and fathers, the patients' age was a significant covariate on the positive ECI total score ($p < 0.05$): more positive caregiving experiences are reported as the patients' age decreased.

Table 4 Means (standard deviations) of the ECI total scores of mothers of ED patients with and without NSSI, controlled for the patients' age ($N = 65$)

ECI total score	Restrictive group (AN-R)						Binge-eating / purging group (BP –ED)						F-test		
	No NSSI		NSSI		Total		No NSSI		NSSI		Total				
	N = 14		N = 19		N = 33		N = 8		N = 24		N = 32				
	M	(SD)	M	(SD)	M	(SD)	M	(SD)	M	(SD)	M	(SD)	AN-R vs BP-ED	NSSI vs no NSSI	Interaction ED subgroup /NSSI
ECI negative	92.71	(17.49)	106.31	(27.11)	100.54	(24.17)	92.00	(15.25)	102.46	(23.64)	99.84	(22.10)	0.17	3.81	0.12
ECI positive	32.78	(4.74)	30.95	(8.74)	31.73	(7.28)	26.62	(7.27)	25.54	(5.82)	26.56	(6.09)	7.75**	0.33	0.85

** $p < .01$ **Table 5 Means (standard deviations) of the ECI total scores of fathers of ED patients with and without NSSI, controlled for the patients' age ($N = 65$)**

	Restrictive group (AN-R)												Binge-eating / purging group (BP –ED)												<i>F</i> -test		
	No NSSI				NSSI				Total				No NSSI				NSSI				Total						
	<i>N</i> = 14				<i>N</i> = 19				<i>N</i> = 33				<i>N</i> = 8				<i>N</i> = 24				<i>N</i> = 32						
	<i>M</i>		<i>(SD)</i>		<i>M</i>		<i>(SD)</i>		<i>M</i>		<i>(SD)</i>		<i>M</i>		<i>(SD)</i>		<i>M</i>		<i>(SD)</i>		<i>M</i>		<i>(SD)</i>				
ECI total score																									AN-R vs BP-ED	NSSI vs no NSSI	Interaction ED subgroup /NSSI

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ECI negative	76.00	(27.32)	95.37	(20.49)	87.15	(25.17)	74.50	(34.07)	90.42	(27.66)	86.44	(29.64)	0.21	6.00*	0.08
ECI positive	24.57	(8.50)	25.74	(7.05)	25.24	(7.59)	20.25	(6.27)	26.21	(6.47)	24.72	(6.84)	0.70	3.63	3.08

* $p < .05$

Discussion

This study confirms that mothers of ED patients have more negative caregiving experiences but also report more positive caregiving experiences compared with fathers (Martín et al., 2013; Sepúlveda et al., 2012). Several explanations can be put forward: Mothers, who are more frequently involved in the nutritional caregiving of children (e.g. preparing meals), might be more exposed to their daughters' illness than fathers and might be more negatively affected by their daughters' illness. But spending more time with their daughter may also involve more emotional closeness, which may explain the more positive caregiving experiences of mothers (Raenker et al., 2013). Further, gender differences in coping strategies might play a role: men/fathers tend to respond with conflict or avoidance/withdrawal ('fight-or-flight') to interpersonal stressors (e.g. relationships and health of relatives) whereas women/mothers tend to respond to these stressors with caring for the children and seeking support with other people ('tend-and-befriend') (Tamres, Janicki, & Helgeson, 2002). The latter may also explain why mothers also report more positive personal experiences (e.g. having become closer to friends) compared with fathers.

Second, no differences were found between the negative caregiving experiences of parents of restrictive versus BP patients. However, mothers (but not fathers) of restrictive patients reported significant more positive caregiving experiences compared with mothers of BP patients. This leans towards the finding of Vidović, Jureša, Begovac, Mahnik, and Tocilj (2005) that the mother-daughter communication was better in restrictive patients versus BP patients, which might be explained by the restrictive patients' tendency for conflict avoidance and sense of duty contributing to the quality of the mother-daughter relationship.

Third, consistent with findings in community samples, it was found that the presence of NSSI in ED patients is associated with more negative parental caregiving experiences (Arbuthnott & Lewis, 2015). The confrontation with NSSI increases negative feelings in parents (e.g. shame, self-blame) probably resulting in increased parental feelings of failure and burden. Further, poor emotion regulation skills, typical for adolescents engaging in NSSI, might contribute to emotional escalations between parents and child and increase parents' burden of care (Arbuthnott & Lewis, 2015; Baetens, Claes, Willem, Muehlenkamp, & Bijttebier, 2011).

Finally, it was found that parents had more positive caregiving experiences as the patients' age decreases. Shorter illness duration could explain why the illness not yet affected the parent-child relationship in a negative way.

Some limitations to the present study must be addressed. The absence of a control group and a small sample size of only female patients diminish the generalizability of the results. Next, the ECI, initially developed for families of people with psychosis, might fail in examining specific caregiving experiences of ED caregivers. Other questionnaires (e.g. Eating Disorders Impact Scale; Sepúlveda et al., 2008) have been developed to address these failures and should be used in future research. Finally, time spent with their child and overall quality of the parent-child relationship were not measured in this study, which prevents us from drawing conclusions about the underlying parent-child dynamic. However, this study, the first to examine the role of NSSI in parental caregiving experiences among ED patients, shows the importance of exploring NSSI in ED families and offering supportive interventions for parents of ED patients, certainly of those patients who engage in NSSI.

Conclusion

Our findings suggest that mothers of ED patients suffer more than fathers under the caregiving situation but that mothers also experience more positive aspects in the caregiving for their daughter. Furthermore, presence of BP behaviours and/or NSSI in ED patients might negatively affect the parents' caregiving experiences.

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CHAPTER 4

Parental autonomy-support and psychological control in eating disorder patients with and without binge-eating/purging behaviour and non-suicidal self-injury⁶

The current study examines whether autonomy-supportive and controlling parenting are related to the presence/absence of binge-eating/purging behaviour and/or non-suicidal self-injury in adolescents with an eating disorder (ED). Fifty-three ED patients completed validated questionnaires assessing perceived maternal and paternal autonomy-supportive and psychologically controlling parenting. A total of 53 mothers and 37 fathers also completed these questionnaires. All patients completed the Self-Injury Questionnaire-Treatment Related to assess non-suicidal self-injury (NSSI). Results showed that patients with binge-eating purging behaviours experienced more maternal psychological control compared to restrictive patients independently of the presence of NSSI. Paternal psychological control or autonomy support did not differ as a function of ED subtype and presence/absence of NSSI. These results suggest that especially mothers of patients engaging in binge-eating/purging behaviours could benefit from family interventions that support parents in diminishing the use of psychological control.

Introduction

Research on the role of parenting style in the development and the course of eating disorders (EDs) has a long-standing tradition (Tetley, Moghaddam, Dawson, & Rennoldson, 2014). Parental style can be characterized along several dimensions, one of which is defined by the extent to which parents support the autonomy development of their child ('parental autonomy support') or the extent to which parents intrude upon their child's thoughts, feelings and behaviour in a controlling way ('parental psychological control') (Barber, 1996; Grolnick & Pomerantz, 2009).

⁶ Depestele, L., Soenens, B., Lemmens, G. M., Dierckx, E., Schoevaerts, K., & Claes, L. (2017). Parental Autonomy-Support and Psychological Control in Eating Disorder Patients with and without Binge-Eating/Purging Behavior and Non-Suicidal Self-Injury. *Journal of Social and Clinical Psychology*, 36, 126-141. doi:10.1521/jscp.2017.36.2.126

One recent study demonstrated the beneficial effects of a perceived autonomy-supportive parental style on eating disorder patients' autonomous motivation for treatment, which predicts better treatment outcome (i.e., weight gain in patients with anorexia nervosa) (Van der Kaap-Deeder et al., 2014). In contrast, several studies demonstrated associations between psychologically controlling parenting and the development of ED symptoms, showing that these associations are mediated by variables such as maladaptive perfectionism, distress or self-competence (Goddard et al., 2013; Salafia, Gondoli, Corning, Bucchianeri, & Godinez, 2009; Snoek, Engels, Janssens, & van Strien, 2007; Soenens et al., 2008). Only one study has simultaneously examined autonomy-supportive and controlling parenting in relation to ED symptoms. Reilly, Stey, and Lapsley (2016) found, in a sample of undergraduate students, that psychologically controlling (but not autonomy-supportive) parenting was related to ED symptoms. These findings suggest that associations of controlling parenting with ED-relevant behaviours are more pronounced than associations of autonomy-supportive parenting, a possibility that will be revisited in the current study.

Although there is evidence linking autonomy-supportive and psychologically controlling parenting – at least indirectly – to ED symptoms, it has not been examined specifically whether these parenting variables are related to the presence of binge-eating /purging behaviours (BP) or non-suicidal self-injury (NSSI), which are known to increase the complexity of the ED problems (Claes & Muehlenkamp, 2014). With regard to BP behaviours, higher levels of paternal overprotection (but not maternal overprotection) were found among BN patients compared with AN patients (Leung, Thomas, & Waller, 2000). Soenens and colleagues (2008) found higher levels of paternal psychological control in BN patients compared to a control group. Further, the AN-R group was situated in between the BN and the control group and did not significantly differ from the BN group and the control group. However, other studies did not find any differences in parental style between AN and BN patients (Tereno, Soares, Martins, Celani, & Sampaio, 2008).

Further, despite the high prevalence of NSSI in ED patients, very little research has focused on the relation between parenting and the presence/absence of NSSI in ED patients. One study showed that ED patients with NSSI perceived their fathers to be less caring and to use a more “affectionless control” style of parenting (i.e. less caring and more controlling) compared to patients without NSSI (Fujimori et al., 2011). Another study showed that ED patients engaging in NSSI reported higher levels of parental criticism than those without NSSI

(Claes, Soenens, Vansteenkiste & Vandereycken, 2012) and felt more external pressure to change (Vansteenkiste, Claes, Soenens & Verstuyf, 2013). In community samples, preadolescents engaging in NSSI (but not their parents) reported higher levels of parental psychological control compared to preadolescents not engaging in NSSI (Baetens et al., 2014a).

In sum, research suggests that parents may be more controlling and less autonomy-supportive when patients display BP behaviours and/or engage in NSSI. These associations are important to be examined as theory and research suggest that autonomy-suppressing and controlling parenting may serve to maintain or worsen ED symptoms (Strauss & Ryan, 1987; Ryan, Deci, & Vansteenkiste, 2016). Thus, adolescent patients and parents may get caught in a negative vicious circle of deteriorating and quality of interaction.

In this study, the hypothesized association between BP behaviour and/or engagement in NSSI and the use of more controlling and less autonomy-supportive strategies by parents is reconsidered, thereby using maternal and paternal ratings of parenting and using multiple informants. The correspondence between adolescents' and parents' reports' is often found to be modest, with parents providing a more positive picture than adolescents (Korelitz & Garber, 2016; Sessa, Avenevoli, Steinberg, & Morris, 2001), which raises the question whether the hypothesized association between ED-related behaviours and parental behaviour exists only 'in the eye of the beholder' (i.e., in the patients' own perspective) or whether it exists also when considered from the parents' perspective.

Method

Participants

This study included 53 female adolescents with an ED and one or both of their parents. In total 53 mother-daughter dyads and 37 father-daughter dyads were included. All patients were admitted to a specialized unit for the treatment of EDs⁷. The mean age of the patients was 17.98 years ($SD = 2.45$, range: 14 – 25 years). Demographic characteristics of the mothers and fathers are described in Table 1.

⁷ Eating Disorders Unit, Psychiatric Hospital Alexianen Tienen, Belgium

Table 1. Demographic characteristics of the mothers (N = 53) and fathers (N = 37)

	Mothers (N = 53)		Fathers (N = 37)	
	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>
Age mean (SD)	47.93	(3.65)	49.13	(3.93)
	<i>N</i>	<i>(%)</i>	<i>N</i>	<i>(%)</i>
Marital status				
Married/living together	40	(75.4)	36	(97.3)
Living single	6	(11.3)	1	(2.7)
Long distance relationship	3	(5.7)	0	(0.0)
Missing values	4	(7.5)	0	(0.0)
Employment				
Paid employed	45	(84.8)	37	(100.0)
Unemployed/homemaker/ sick/retired	4	(7.5)	0	(0.0)
Missing values	4	(7.5)	0	(0.0)

All patients were assessed by the psychiatrist of the unit using a clinical interview according to the DSM-IV criteria (APA, 1994), supplemented with the Eating Disorder Evaluation Scale (EDES; Vandereycken, 1993). Of the 53 patients, 24 (45.3%) were diagnosed as anorexia nervosa, restrictive type (AN-R), 13 patients (24.5%) as anorexia binge-eating/purging type (AN-BP), 8 patients (15.1%) as bulimia nervosa (BN) and 8 (15.1%) as ED not otherwise specified (ED-NOS). For the purpose of this study, patients were clustered into two ED subgroups: 26 patients (49.1%; 24 with AN-R and 2 with ED-NOS) were diagnosed with restrictive behaviour (ED-R) and 27 (50.9%; 13 with AN-BP, 8 with BN and 6 with ED-NOS) with BP behaviours (ED-BP).

Thirty-two patients (60.4%) reported lifetime presence of at least one type of NSSI, whereas 21 patients (39.6%) never engaged in NSSI. The presence of NSSI was significantly higher in BP patients (74.1%) compared to restrictive ED patients (46.2%) ($\chi^2_{(1)} = 4.32$, $p < 0.05$).

Illness duration was significantly longer in patients with BP behaviour than in restrictive patients and also longer in patients with NSSI than in patients without NSSI ($p < 0.05$). No significant age difference was found between the two ED subgroups nor between patients with and without NSSI (Table 2).

Table 2. Clinical characteristics of the ED-R and ED-BP patients (N = 53)

	Restrictive group (ED-R) (N = 27)		Binge-eating/purging group (ED-BP) (N = 26)		
	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>	<i>t</i> -test
Age	17.65	(2.33)	18.30	(2.57)	0.95
BMI	15.06	(1.96)	19.95	(6.29)	3.85**
Illness duration (years)	2.33	(1.69)	3.76	(2.57)	2.41*
	<i>N</i>	<i>(%)</i>	<i>N</i>	<i>(%)</i>	$\chi^2_{(1)}$
Lifetime presence of NSSI	12	(46.6)	20	(74.1)	4.32*
Scratching	6	(24)	14	(51.9)	4.25*
Biting	3	(12.0)	7	(25.9)	1.62
Bruising	6	(24)	6	(22.2)	0.23
Cutting	9	(36)	16	(59.3)	2.81
Burning	3	(12)	1	(3.7)	1.26

* $p < 0.05$ ** $p < 0.01$

Procedure

All patients, mothers and fathers completed an online survey during the first 4 weeks of admission after having given a written informed consent. The study was approved by the Ethical Committee of the Hospital.

Measures

Parental psychological control was assessed with the Psychological Control Scale (PCS; Barber, 1996). In this study, only 7 of the 8 original items were used, since one item ("I am always trying to change the way my daughter is feeling or thinking about things") diminished the internal consistency of the scale (in particular in the maternal ratings). Items were rated on 5-point Likert scales ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Cronbach's alpha values for this scale in this study across the 4 ratings (patient versus parent x mother versus father) varied between 0.60 and 0.92.

Parental autonomy support was assessed with the 7-item Autonomy Support Scale, a subscale of the Perceptions of Parents Scale (POPS; Grolnick, Ryan, & Deci, 1991; Dutch translation: Soenens et al., 2007). Participants provided separate ratings for perceived paternal and maternal parental style. In addition, both fathers and mothers completed the parent-versions of both questionnaires. Items were rated on 5-point Likert scales ranging

from 1 (*strongly disagree*) to 5 (*strongly agree*). Cronbach's alpha values in this study across the 4 ratings varied between 0.74 and 0.87.

All patients also completed the Self-Injury Questionnaire-Treatment Related (SIQ-TR; Claes & Vandereycken, 2007) to assess the presence of five specific NSSI behaviours. A patient was assigned to the NSSI category when she answered 'yes' to at least one type of NSSI during lifetime. The Cronbach's alpha coefficient of the SIQ-TR in the present study was 0.70.

Data-analyses

To examine differences in parental style between restrictive and BP ED patients and between patients with or without NSSI and to examine whether these differences depend on the reporter (parent or patient), two Repeated Measures Analyses of Covariance (RM ANCOVA) were performed: one with the responses of 53 mother-daughter dyads and another with the responses of 37 father-daughter dyads. A RM ANCOVA was chosen to take into account the interdependency between the daughters' and mothers'/fathers' responses. The patients' and mothers'/fathers' scores on the Psychological Control Scale and the Autonomy Support Scale were used as dependent variables, informant (mothers vs. patients/fathers' vs patient) was modelled as a within-subjects factor and the presence/absence of BP behaviour, the presence/absence of NSSI and their interaction (BP*NSSI) were used as independent variables. A significant association between age/illness and the outcome variables was found (Table 3). Since illness duration and age are positively correlated and since illness duration (but not age) differed significantly between the ED (i.e., with or without BP and with or without NSSI), illness duration will be included as a covariate.

All analyses were performed by means of SPSS version 22. A type I error of 0.05 was used throughout all the analyses.

Table 3. Correlations between patients' age, illness duration, psychological control and autonomy support

		<i>M (SD)</i>	Age	Illness duration	MPC		MAS		PPC		PAS	
					PR	MR	PR	MR	PR	FR	PR	FR
Age	<i>N</i> = 53	17.98 (2.45)										
Illness duration	<i>N</i> = 53	3.06 (2.28)	.46**									
MPC	PR <i>N</i> = 53	2.22 (1.02)	.29*	.37**								
	MR <i>N</i> = 53	1.86 (0.49)	.12	.15	.32*							
MAS	PR <i>N</i> = 53	3.81 (0.75)	-.15	-.44**	-.74**	-.33*						
	MR <i>N</i> = 53	44.00 (0.68)	-.41**	-.16	-.29	-.51**	.32*					
PPC	PR <i>N</i> = 37	2.24 (0.98)	.36*	.34	.42**	.17	-.29*	-.19				
	FR <i>N</i> = 37	31.93 (0.71)	.25	.22	.09	.11	-.03	-.05	.04			
PAS	PR <i>N</i> = 37	3.62 (0.84)	-.03	.10	-.21	-.04	.28	.25	-.67**	-.19		
	FR <i>N</i> = 37	33.98 (0.65)	-.45**	-.33*	-.39*	-.41**	.37*	.61**	-.46**	-.44**	.29	

Notes. PR = Patients' report; MR = Mothers' report; FR = Fathers' report; MPC=Maternal Psychological Control; MAS= Maternal Autonomy Support; PPC= Paternal Psychological Control; PASS = Paternal Autonomy Support; **p* < 0.05 ***p* < 0.01

Table 4. Means (standard deviations) of maternal psychological control and maternal autonomy support in function of ED group, presence/absence of NSSI and informant (N = 53)

Restrictive group (ED-R)						
	No NSSI		NSSI		Total	
	N = 14		N = 12		N = 26	
	PR	MR	PR	MR	PR	MR
	N = 14	N = 14	N = 12	N = 12	N = 26	N = 26
	M(SD)	M(SD)	M(SD)	M(SD)	M(SD)	M(SD)
MPC	1.94 (0.71)	1.67 (0.45)	1.72 (0.70)	1.77 (0.31)	1.84 (0.70)	1.72 (0.39)
MAS	4.05 (0.64)	4.20 (0.45)	4.02 (0.61)	3.86 (0.81)	4.04 (0.62)	4.04 (0.66)
Binge-eating / purging group (ED-BP)						
	No NSSI		NSSI		Total	
	N = 7		N = 20		N = 27	
	PR	MR	PR	MR	PR	MR
	N = 7	N = 7	N = 20	N = 20	N = 27	N = 27
	M(SD)	M(SD)	M(SD)	M(SD)	M(SD)	M(SD)
MPC	2.41 (1.22)	2.14 (0.63)	2.64 (1.15)	1.95 (0.51)	2.58 (1.15)	2.00 (0.54)
MAS	3.67 (0.86)	3.67 (0.91)	3.56 (0.81)	4.06 (0.62)	3.59 (0.81)	3.96 (0.71)

PR= Patients' report; MR= Mothers' report; MPC=Maternal Psychological Control; MAS = Maternal Autonomy Support

Results

The RM ANCOVA with maternal autonomy support and maternal psychological control as dependent variables, informant (mothers vs patients) as within-subjects factors, and NSSI and ED subgroup as independent variables showed a main effect of ED subtype [Wilks' $\lambda = 0.88$, $F(2, 47) = 3.12$, $p = 0.05$] (see Table 4). Subsequent univariate analyses showed elevated levels of psychological control ($p < 0.05$) in mothers of BP patients compared to

those of restrictive patients. This effect was not moderated by type of reporter, indicating that it was robust across informants. Further, there was no main effect of the presence/absence of NSSI [Wilks' $\lambda = 0.99$, $F(2, 47) = 0.17$, *ns*] nor a significant interaction between ED*NSSI subgroup [Wilks' $\lambda = 0.94$, $F(2, 47) = 1.37$, *ns*]. No main effect of informant emerged [Wilks' $\lambda = 0.99$, $F(2, 47) = 0.14$, *ns*]. Further, no significant interactions between informant and NSSI / ED subgroups were found. Illness duration was a significant covariate [Wilks' $\lambda = 0.88$, $F(2, 47) = 3.21$, $p = 0.05$]: less maternal autonomy support ($p < 0.05$) and more maternal psychological control ($p = 0.05$) is reported in patients with a longer illness duration. In sum, more maternal psychological control was reported in presence of BP behaviour independently of the presence/absence of NSSI and independently of informant (Table 4).

Table 5. Means (standard deviations) of paternal psychological control and paternal autonomy support in function of ED group, presence/absence of NSSI and informant (N = 37)

Restrictive group (ED-R)						
No NSSI		NSSI		Total		
N = 9		N = 9		N = 18		
PR	FR	PR	FR	PR	FR	
N = 9	N = 9	N = 9	N = 9	N = 18	N = 18	
M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	
PPC	2.11 (0.88)	1.59 (0.60)	2.06 (1.19)	2.01 (0.67)	2.09 (1.02)	1.80 (0.66)
PAS	3.49 (0.84)	4.24 (0.54)	3.81 (0.94)	4.17 (0.53)	3.65 (0.88)	4.21 (0.52)
Binge-eating / purging group (ED-BP)						
No NSSI		NSSI		Total		
N = 6		N = 13		N = 19		
PR	FR	PR	FR	PR	FR	
N = 6	N = 6	N = 13	N = 13	N = 19	N = 19	
M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	
PPC	2.55 (1.13)	2.19 (0.53)	2.31 (0.91)	1.98 (0.84)	2.38 (0.96)	2.04 (0.75)

PAS	3.45 (0.86)	3.55 (0.89)	3.67 (0.85)	3.87 (0.62)	3.60 (0.83)	3.77 (0.70)
PR= Patients' reports; FR = Fathers' report; PPC=Paternal Psychological Control; PAS = Paternal Autonomy Support						

A similar RM ANCOVA with paternal autonomy support and paternal psychological control as dependent variables showed no main effect of ED subgroup [Wilks' $\lambda = 0.96$, $F(2, 31) = 0.68$, *ns*], no main effect of the presence/absence of NSSI [Wilks' $\lambda = 0.95$, $F(2, 31) = 0.88$, *ns*] and no significant interaction between ED subgroup and the presence/absence of NSSI [Wilks' $\lambda = 0.97$, $F(2, 31) = 0.45$, *ns*]. A main effect of informant emerged [Wilks' $\lambda = 0.81$, $F(2, 31) = 3.66$, $p < 0.05$]. Univariate analyses showed that paternal autonomy support was rated significantly higher by fathers than by patients ($p < 0.05$). The patients' illness duration as a covariate was not significant [Wilks' $\lambda = 0.99$, $F(2, 31) = 0.12$, *ns*] (Table 5).

Discussion

The main finding of this study is that mothers of ED-BP patients use more psychological control than mothers of restrictive ED patients independently of type of reporter. We discuss some of the possible underlying mechanisms of this association. First, as a rather visible and troubling signal of eating pathology, BP behaviour may elicit parental feelings of powerlessness and incompetence (e.g. feeling unable to prevent their child from BP behaviour) leading to an increase in psychologically controlling behaviour toward a daughter with an ED (Pomerantz & Eaton, 2001). Second, maternal psychological control may increase the likelihood of BP behaviour. High levels of parental psychological control might predict deficits in emotion regulation that, in turn, might lead to an increased vulnerability for BP behaviour in ED patients (McEwen & Flouri, 2009; Salafia et al., 2009). Further, based on Self-Determination Theory (Deci & Ryan, 2000), it has been argued and found that controlling parenting frustrates children's basic psychological needs for autonomy, competence, and relatedness (Soenens & Vansteenkiste, 2010). Adolescents might develop BP behaviour to cope with this need frustration (Verstuyf, Vansteenkiste, Soenens, Boone, & Mouratidis, 2013): In a controlling environment an adolescent with ED will feel like she has no choice but to act in the way that is dictated by her parents. Then, BP behaviour might become a strategy to solve the inner conflict between complying with her parents' request to eat and pursuing her personally endorsed goals (i.e., no gain weight) (Botta & Dumlao, 2002).

Interestingly, BP behaviour was unrelated to maternal autonomy-support. This finding confirms that controlling parenting (as an expression of the 'darker side' of parenting) is more relevant to predict maladaptive outcomes and psychopathology and that autonomy-supportive parenting (as an expression of the 'brighter side' of parenting) is more relevant to predict adaptive developmental outcomes and well-being (Costa, Cuzzocrea, Gugliandolo, & Larcan, 2016). Further, the association between parental psychological control and BP behaviour was not found in the father-daughter dyads. This might be explained by the fact that mothers are more strongly involved in the nutritional aspects of parenting (e.g., preparing meals), might witness ED behaviour of their daughters more frequently than fathers (Raenker et al., 2013) and consequently may get more affected by ED behaviour than fathers (Depestele et al., 2016; Martín et al., 2011). However, this difference in findings might also be due to the smaller subsample size. Against our hypotheses, no association was found between parenting and the presence/absence of NSSI in ED patients. This is in contrast with previous findings in community samples that preadolescents engaging in NSSI (but not their parents) reported higher levels of parental psychological control compared to preadolescents not engaging in NSSI (Baetens et al., 2014a). However, older adolescents and adolescents with a clinical diagnosis of ED might have developed more sophisticated methods of hiding their NSSI behaviours. As such, parents of older adolescents and of patients with a clinical diagnosis might not always be aware of their child's NSSI behaviour. Thus, parental awareness of NSSI may be an important moderating factor (with NSSI eliciting psychologically controlling parenting only when parents know about the behaviour) and a factor explaining discrepancies between studies (Baetens et al., 2014b).

Further, no significant differences were found between mothers' and patients' reports on psychological control and autonomy support. However, we found that paternal autonomy support was rated as significantly higher by fathers than by patients. This is in line with a general tendency for parents to rate their parenting style more positively than children (Korelitz & Garber, 2016) and with our previous research showing that patients mostly differ with their fathers in their perception of family variables (Depestele et al., 2015).

Finally, this study showed that patients reported less maternal autonomy support and more psychological control as their illness duration was longer. This might indicate that the longer the illness takes, the more profoundly the parent-child relationship might be affected in a negative way, resulting in psychologically controlling parenting. However, it is also possible

that patients who experience a higher level maternal psychological control are more vulnerable to develop more persistent ED symptoms.

This study has some limitations. The small sample size and the selection of inpatients only set limits to the generalizability of our results. Not all fathers filled out the questionnaires, which prevented us from directly comparing mothers' and fathers' parental style. Further, although the reliability for the Psychological Control Scale was generally good, it was low for one specific rating, that is, mothers' self-report ($\alpha = 0.60$). This is likely due to low rates of endorsement of some of the items especially by mothers. Finally, due to the cross-sectional design of the study, it is difficult to draw any conclusion about the causal mechanisms underlying the associations obtained. Longitudinal research in larger ED samples (inpatients/outpatients) with a control group with and without NSSI is needed to examine the direction of effects in associations of NSSI and BP behaviour with parenting and to come to a deeper understanding of the underlying mechanisms in these associations.

This was the first study simultaneously investigating associations of BP behaviour and/or NSSI with parenting in ED patients, including ratings of both mothers and fathers. The association between higher levels of maternal psychological control and BP behaviour in ED patients might indicate that in these families special attention is needed for the mother-daughter dynamic/interaction. Mothers of ED-BP patients probably could benefit from family interventions that support parents in diminishing the use of psychological control to cope with ED symptoms in their child.

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PART II: MULTI-FAMILY THERAPY IN EATING DISORDERS

CHAPTER 5

Promotion of an autonomy-supportive parental style in a multi-family group for eating disordered adolescents⁸

In a group-oriented inpatient treatment program for eating-disordered adolescents a multi-family group intervention has been developed. Within the inpatient unit the patient's autonomy and sense of choice concerning the treatment are structurally embedded. Consequently, the multi-family group promotes an autonomy-supportive parental style. This article reports the therapeutic model of the group and its consequences for the role of the parents in the treatment of eating disorders. The treatment process of the multi-family format is also explained and clinical vignettes are given to illustrate the different therapeutic techniques. Finally, benefits and limitations of the group are discussed.

Introduction

For decades a fairly negative view about the family dominated the field of eating disorders. Particularly the parents were considered to be responsible for the development of the eating disorder of their child (Kog & Vandereycken, 1989). As a result they were frequently excluded from treatment. It was only in the early seventies that Minuchin and his colleagues (Minuchin et al., 1978) first pioneered with the involvement of families in the treatment of patients with eating disorders. Although Minuchin's theory and research of the psychosomatic family are currently criticized for confounding correlations with causality, his structural family therapy model became a reference in the treatment of anorexia nervosa. Moreover, it has inspired many family therapists to develop new systemic, strategic, and narrative constructs in the treatment of anorexia nervosa (Depestele & Vandereycken, 2009; Eisler, 2005; Kog & Vandereycken, 1989). Nowadays the linear causal model has largely been replaced by a circular model describing the eating disorder as the 'central organizing principle' of the family (Eisler, 2005). The family life gets stuck in vicious circles and becomes gradually

⁸ Depestele, L., Claes, L., & Lemmens, G. (2015). Promotion of an autonomy-supportive parental style in a multi-family group for eating-disordered adolescents. *Journal of Family Therapy*, 37, 24-40. doi: 10.1111/1467-6427.12047

monopolized by the eating disorder (Treasure et al., 2011; Whitney & Eisler, 2005). Current family-based treatments (FBT) try to block the central role of the symptom in the family organization by challenging disabling family perceptions and meanings (e.g., beliefs about guilt and blame), identifying strengths of the family as a resource, and reinforcing the family adaptation processes that enable developmentally appropriate family life-cycle changes (Eisler, 2005).

There is an increasing body of evidence that these FBTs are effective in the treatment of anorexia nervosa and to a lesser extent of bulimia nervosa (Downs & Blow, 2013; Loeb & Le Grange, 2011). In summary, FBT leads to a significantly better weight gain than individual therapy in adolescent anorexia nervosa (Russell et al., 1987) and this difference continues for up to 5 years (Eisler et al., 1997). In adolescent bulimia nervosa, FBT is more effective than individual therapy in decreasing the binge-and-purge behaviours up to 6 months after treatment. In contrast with anorexia nervosa, bulimia adolescents with low levels of eating psychopathology do better in FBT (Le Grange et al., 2007, 2008). Research has also pointed to beneficial effects of particular family therapy formats. Multi-family group interventions are not only reported to be as effective as a single family format but also as more cost-effective (Geist et al., 2000; Bruneaux & Cook-Darzen, 2008; Whitney et al., 2012). The presence of different families in the multi-family group creates an excellent context to block the central role of the illness in families living with an eating disordered adolescent (Dare & Eisler, 2000; Gísladóttir & Svararsdóttir, 2011; Hollesen et al., 2013; Treasure et al. 2011). Hearing other families talking about how to deal with similar problems already initiates an implicit learning process without the need for explicitly expressing thoughts and emotions. It helps families to broaden their own perspectives and to try out new behaviours. The experience of communality may further reduce feelings of guilt and improve the burden on these families leading to a better recovery process of the patients (Mehl et al., 2013; Uehare et al., 2001; Whitney et al., 2012). Finally, the aims and practice of multi-family therapy are experienced as more transparent and less threatening by the families compared to single family therapy (Fairbairn et al., 2011).

Taking into account these findings and our extensive clinical experience, a multi-family therapy group intervention (MFT) has been developed for an inpatient eating disorder unit. In contrast with most reported multi-family interventions concerning outpatient treatment

programs this MFT intervention is part of an inpatient treatment using an autonomy-supportive therapeutic model.

Inpatient treatment background

The multi-family therapy group (MFT) is conducted in an eating disorder unit for 35 adolescents and/or young adults⁹. Only female patients are admitted with an age range between 14.5 and 35 years old. The duration of the inpatient treatment varies from 3 months to 6 months. The therapeutic program involves 3 phases: the introductory and motivational phase (3-4 weeks), the treatment phase (8-16 weeks) and the relapse prevention and discharge phase (4 weeks). The therapeutic program of the unit is mainly offered in a group format and includes cognitive behavioural psychotherapy, psychomotor therapy, nutrition education, socio-therapy and occupational therapy. The unit is structured in many ways: meals are served in fixed portions, mealtimes and snacks have a fixed schedule.

The conceptual model of the described inpatient treatment is the self-determination theory (SDT): the degree to which patient's behaviour is self-motivated and self-determined, without external influence, improves treatment compliance and outcome (Deci & Ryan, 2000). In the program patients' autonomy and sense of choice are central particularly at the start of the treatment. Before admission every patient is assessed by a psychiatrist, followed by a visit to the unit and a brief explanation of the therapeutic program. An introductory admission of minimum 5 days is proposed to all patients. After this week every patient may discharge herself, even against the family's will. If the patient decides to stay after the week she enters the 'motivation program' offering psycho-education and explorative group sessions focusing on the clarification of the patient's motivational ambivalence. As long as her physical condition is not in danger the patient is free to eat or not. After 3 or 4 weeks the patient finally has to come to a decision whether she wants to enter the treatment program. But choosing for this program implies the patient's agreement with minimal behavioural objectives (eg. weight gain 750 g/week or reducing purging behaviour) to 'prove' their motivation. If the patient cannot meet this minimal goals within a certain time discharge from the hospital automatically follows. Re-admission is possible when the patient feels sufficiently motivated to realize the expected minimal behavioural changes. So, during the first weeks of the

⁹ Eating Disorders Unit, Alexian Brothers Psychiatric Hospital, Tienen, Belgium

hospitalization, the patient herself, and not the parents, decides whether she wants to continue the treatment (Vandereycken & Vansteenkiste, 2009; Vansteenkiste et al., 2005).

Consequently, the parents are stimulated to take an autonomy-supportive stance which entails being aware of their daughter's perspective, offering choices whenever it is possible and/or providing meaningful reasons when choice is constrained. During the motivational phase parents are also explicitly asked to avoid any argument around the patient's decision (Soenens et al., 2007; Soenens et al., 2010). To support the autonomy supportive attitude of the parents a parent meeting is planned within the first two weeks of the admission. When a patient chooses for the long-term program an individual family session is planned and this is repeated up to 2-4 times during the inpatient treatment. In addition patients and parents are invited to participate in the multi-family group, which is considered as the core of the family treatment.

The multi-family intervention

The eating disorder as a central organizing principle may provoke a more controlling parenting style and simultaneously undermine the adolescents' autonomy, leading to worse outcome (Castro, 2000; Soenens et al., 2008). In line with the unit's rationale, the multi-family group intervention promotes an autonomy-supportive parental attitude and directly and indirectly stimulates the adolescents' autonomy as self-determination.

First, the MFT context itself creates an autonomy-supportive atmosphere, which challenges adolescents and parents to dialogue about their own interests, goals and values and the possible struggles they experience when trying to act upon them. During several therapeutic exercises the adolescents will be stimulated to express their thoughts and emotions. The presence of other families in the group helps patients and parents to regulate their emotions, to better listen to each other and to express their feelings in a more appropriate way (Lemmens et al., 2003). The eating disorder itself is often experienced as a major obstacle for volitional functioning. 'Externalization' as a therapeutic intervention may also help the family members to reflect on this process and stimulate the patients' and family members' sense of choice (White, 1988/9).

Secondly, during the MFT intervention the parents are encouraged to reduce their control, to make clear agreements with their daughter to avoid further discussion and to regain mutual trust. Parents are also supported to better structure the meal times and to become more confident in setting boundaries with room for their adolescent's voice but without getting caught in continuous negotiations and renegotiations. In contrast with the Maudsley model, parents are not expected to take full responsibility for the eating behaviour of the adolescent. Parents are expected to only create the conditions supporting their daughters' autonomy in establishing healthy eating behaviour at home (patients go home one night a week and during the weekend).

Organization of the group

All parents of the patients (< 22 years) in the long-term treatment program are invited to participate in the group. Siblings are not invited for group size reasons. The group is attended by 4 to 6 patients with anorexia nervosa, bulimia or an eating disorder not otherwise specified and their parents. A group cycle involves one introductory 3-hour session, five 2-hour sessions every two weeks and a follow-up session after 6 months. The second and third session are preceded by a dinner with all participants and therapists.

All sessions are structured in a similar way: a go-round, a therapeutic exercise and a group discussion. The *go-round* is an open reflective moment where the families are invited to talk about their experiences since the last session. Then, the session continues with a *therapeutic exercise* (see Table 1) and it ends with a group discussion where the participants reflect on what they have learned from the exercise and how their insights may be translated into new behaviours to experiment with between the sessions. The cycle of the different sessions (1-7) reflects the different phases of the family treatment: engagement (session 1), symptom focused phase (session 2-3), relational phase (session 4-5), and future oriented phase (session 6-7) (see Table 1) (Depestele & Vandereycken, 2005; Eisler, 2005).

Table 1 *Therapeutic exercises, goals and phases of the multi-family group*

	Session 1	Session 2	Session 3	Session 4	Session 5	Session 6	Session 7
Therapeutic Exercise	Introduction	Changing roles	Reconstituted families	Goldfishbowl independency – separation-individuation	Family Sculpting	Relapse prevention	Goldfishbowl consolidation
Goals	Meeting each other Dialogue Group bonding	Group bonding Improvement perspective taking & increasing problem solving skills	Group bonding Improvement perspective taking & increasing problem solving skills	Improvement perspective taking & Reflection on normal adolescent developmental tasks	Reflection on family functioning	Preparing discharge	Follow-up Consolidation of MFT experience
Treatment phases	Engagement phase	Symptom focused phase	Symptom focused phase	Relational focused phase: issues of individual and family development	Relational focused phase: issues of individual and family development	Future oriented phase	Future oriented phase

During the engagement and symptom phase (sessions 1-3), the sessions focus on sharing and connecting the different stories of the families. Frequently asked questions by the therapist are questions about common family activities, interests, characteristics or what they appreciate about each other: *“What do you as a father really appreciate about your daughter?”* Main purpose of these questions is to create a safe and relaxed atmosphere in the group and to help the families with disclosing. Group bonding is stimulated by connecting similar family narratives: Lisa’s father just told about his similar passion for cycling *“So Jane (patient of a different family), apparently you’re not alone with an interest in cycling?”*

Session 2 and 3 focus on the impact of the eating disorder on the family and on how to find solutions for the eating related problems. Frequently asked questions by the therapist are: *‘How did the disorder change the family?’*, *‘Who is suffering the most?’*, *‘What would siblings tell about the eating difficulties if they were present?’*. The therapeutic exercises used in these sessions aim to gain new perspectives on the eating disorder and to find new solutions for problem situations caused by the ‘externalized’ eating disorder (Eisler, 2005). ‘Externalization’ as a therapeutic technique strengthens the process of becoming more autonomous and independent from the eating disorder: *‘When your mum prepares a meal with diet food, does it helps you in your recovery or does it helps your eating disorder to become stronger?’*

The exercises in session 4 and 5 tackle the interaction patterns within the families and in particular the 'autonomy in terms of independency' issues. Parental uncertainty and difficulties in letting go 'controlling behaviour' goes often parallel with the daughter's fear about an independent life from the parents and without the eating disorder. Hereby, the family sculpt exercise is an excellent tool to demonstrate in vivo the familial relations and the impact of the eating disorder on the family-life and the individuation process of the adolescent.

In session 6 and 7 the focus is on future and relapse prevention. In different subgroups mothers, fathers and daughters discuss warning signals, emergency scenarios and who does what in case of relapse. Parents and adolescents get the opportunity to explain themselves what they consider as parental supportive tasks (eg. stimulating hobby's, providing structure in meal times) and what they consider as responsibility of the patient (eg. retaining a stable weight).

Joined meals

Before session 2 and 3, all group members (including the therapists) participate in a joined meal. In contrast with some other FBT's where the family meals are used to 'enact' the eating problem and to explore possibilities of change (Colahan & Robinson, 2002; Hollesen et al., 2013; Scholz et al., 2005), the family meals in our intervention are mainly considered as an opportunity to socialize in a more natural way. The therapist will not intervene when adolescents are struggling during the meal. But after the meal, there is some room for discussing the meal experiences in the group: "*Was it better or worse than expected?*" "*What do you expect from others to help you in this?*". In line with the ideas of autonomy-support the patient herself is challenged in exploring how she wants her parents to help her. Finally, the parents may get a more accurate view of appropriate food portions that their daughter receive in the hospital which may help them to feel more confident in supporting their daughter at home.

Therapeutic exercises

The different therapeutic exercises of the different sessions will now be discussed in detail and illustrated with clinical vignettes.

Changing roles (Session 2). In the 'changing roles' exercise family members are explicitly asked to change roles when they discuss their positive and negative experiences of the last weekend. So, mother may role-play the daughter, the daughter the father and the father the mother. This exercise aims to challenge each other's viewpoints, to find new solutions for eating related conflicts and to negotiate a balance in offering versus accepting parental support without being demanding versus controlling.

The interaction between Cindy and her mother is close and enmeshed. Mother's parental style is warm but overprotective in a controlling way. Cindy at her turn is often demanding her mum to make decisions for her and continuously asks her mother for confirmation about weight issues. The therapist asks Cindy in the role of her mother: "In this problem, what could be a point of attention for Cindy?" Cindy replies: "She shouldn't come to me that much for all those little things." Therapist further asks: "And how would you help her with that?" Cindy replies again: "Telling her that she has to try to resolve these problem herself.... That she is able to do it herself." Therapist summarizes: "You should tell her that she is capable of making decisions on her own... Do you think you'll be able to do so?" Cindy answers in the role of her mother: "It will be very difficult...but I might ".

Interestingly, after the changing roles exercise, another parent mentions in the discussion the ambivalence of Cindy for functioning more autonomously: *How is it possible that you on one hand ask your mum to be strict with you but on the other hand you admit that you are often panicking in such situations...?* This dialogue creates a meta-communication about the family functioning with at one end the ambivalence of the adolescent to make her own decisions and at the other end the mothers' ambivalence in changing her controlling parental style to give more space for the autonomy of the daughter.

Reconstituted families exercise (session 3). In this exercise all families are mixed: every patient gets another mother and father and every parent gets another partner and daughter. Then, the 'reconstituted families' are asked to discuss five different problem-saturated situations (for an example see table 2), which are written down on a card. The discussion is guided by two important questions: *'Do you recognize this problem in your family?'* and *'Do you agree with the proposed solution of the parent in the example and/or what would you suggest to do differently?'*

Sophie's mother discussed the 'anorexia clothes situation' with Lincy, a patient with anorexia nervosa. She agreed with the strategy of Emma's mother (see example 1 table 2). Lincy responded differently: "Throwing away my 'tiny anorexia clothes' was a big step in my recovery process. It is like there is no way back. However, keeping my anorexia clothes would mean that they are still waiting for me..." This response changed Sophie's mother's viewpoint. She replied: "I would have kept all of Sophie's clothes for practical reasons, you never know whether Sophie gets sick and skinny again. But now I understand that I would make it very difficult for my daughter when I would insist to keep these clothes"

The reconstituted families exercise also helps the parents to see the eating disorder more as an external illness, which affects their daughter's life. Parents are often struck by the similarity of the problems told by their 'new daughter' and those, which they have experienced at home with their own daughter. Further, they may more easily hand back control of the eating behaviour in the discussion with another daughter than their own daughter.

Table 2 Two examples of problem-saturated situations

Example 1	"Emma has frequently been hospitalized for anorexia nervosa. At the moment she has gained a healthy weight and she wants to throw her 'anorexia-clothes' away. Her mother wants to keep her clothes because Emma may relapse. Clothes are after all expensive..."
Example 2	"Laura frequently avoids meeting her friends and doesn't want to eat in their presence when she feels uncertain. As a result Laura withdraws from social activities. However, her father forces her to go to social activities with friends (eg. scouts). The Laura's mother disagrees with her husband but she doesn't intervene."

Reflecting goldfish bowl discussions (Session 4 & 7). In the classic goldfish bowl technique a discussion takes place in an inner circle of the group. At the same time, other group members sitting in the outer circle, are asked to listen to (and not allowed to interrupt) the inner circle discussion (Bruneaux & Cook-Darzen, 2008) and finally a discussion takes place in the whole group. The reflecting goldfish bowl technique also incorporates the reflecting team method (Asen & Scholz, 2010). After the first inner circle discussion, the outer circle becomes the inner circle and reflects on the first inner circle discussion. Afterwards the group discussion takes place. In session 4 the parents are asked to discuss the 'autonomy / independency' theme using this technique: *'In which way is independency of the adolescent*

hindered by the eating disorder and how may a parent help to overcome this?’ After the inner circle discussion, the adolescents reflect on the discussion of their parents. In session 7 the same technique (but with adolescents first in the inner circle) is used for discussing different signs of relapse. This technique supports the dialogue between the different generations within the families, in particular for high conflict families. The parents may more easily empathize with their daughters and get more insight in their daughter’s dilemmas by hearing other patients describing similar ones. They may also feel more supported by hearing similar experiences of their counterparts in other families.

In session 7, the adolescents discuss their expected difficulties after discharge. Sara (17 years old) explains: ‘I’m afraid of my mum’s reaction if I start dieting again. Making one mistake is no option for me because my mother would be furious!’. Another patient (Jessica, 19 years) reacts: ‘It is important to talk about this with your parents but I’m also very afraid of disappointing my parents when I would tell them that I have difficulties with eating again.’ Sara mentioned further that her mother has suffered a lot during the past years and that she experiences the current treatment as a sort of last chance: ‘I feel so guilty for all the suffering caused by me and I don’t want to do that again to her.’

After changing the discussion to the outer circle, Sara’s mother reflected that she was surprised that all daughters were afraid of disappointing their parents: *“When Sara was suffering from her anorexia I had the impression that she was totally enwrapped with herself and there was no contact between us. I definitely don’t want to lose the contact that we have now again”*. This exercise stimulated the interaction between mother and daughter. Feelings of guilt refer to an internal obligation to act in a certain way – disclosing these feelings in presence of others may make space for more autonomous functioning. Another therapeutic intervention to stimulate the patients’ autonomy could be *‘If you were free of these feelings of guilt, are there some other reasons for you to fight against your eating disorder?’*

Family sculpting (Session 5). During the family sculpting session, the different families are asked to make a living sculpture of another family. The therapist strongly leads and structures this exercise for guaranteeing a serene, secure and respectful atmosphere. The sculpting takes place in different steps. Firstly, the family, which is sculpted, is asked to turn backwards while the other families (divided in ‘sculptors’ and ‘living statues’) are quietly making the sculpture based on how they have perceived the family during the previous sessions. When

the sculpture is finished, the sculpted family may turn around and is asked to give their impression about the sculpture: *'Does it fit with your feelings about your family?' 'What feels okay and what does not?'*. They are further allowed to change the living sculpture in a way that they believe that it better fits the actual family. Then, the therapist invites the 'sculptors' to describe the sculpture and the 'living statues' to talk about how they feel in that position. The patient of the family that has been sculpted further chooses an actor to represent the eating disorder and to place the 'eating disorder' in the living sculpture (Eisler, 2009). Again, 'externalising' the eating disorder may help the parents to move away from the position of being at war with the daughter to the position of being at war with the eating disordered behaviour (Nicholls & Magagna, 1997). Finally, the exercise offers a future perspective and installs hope. Family members are asked to discuss if or how they want to change their own position in the future within the sculpture and its effects on the other family members are explored: *After the question 'What position do you want within this family in the future?' Sara's mum puts herself a little further from her daughter and closer to the other family members. Further, the therapist asks them: 'How would it be for you and for your daughter if this would happen at home?'*

Some reflections about the multi-family group intervention

The multi-family therapy group may be a useful method to involve parents in a specialized inpatient treatment unit for eating disorders. First, the burden of care in parents of eating disordered adolescents is mostly high and participating in the MFT group may help to reduce feelings of failure, isolation or stigmatisation of the parents. Secondly, the intensity of the intervention may strengthen the collaborative relationship between the families and the clinical staff. It may offer parents more insight into the rationale of the inpatient treatment. But the group also brings families more 'present' in other therapies of the inpatient treatment: Patients frequently talk about how they have experienced the group and their parents and what they want to discuss next time in the group. In this way, the inpatient treatment is enriched by new and more context and dialogue as a result of the group. Third, the group supports the parents in offering an autonomy-supportive climate at home. The exercises and discussions often reduce controlling, conflictual parent-child interactions and give excellent opportunities for experiencing more positive interactions. In addition during the inpatient

treatment the adolescent becomes physical and psychological stronger which gives parents more confidence for working on their parental style in the group.

The multi-family group and its conceptual model may also have some limitations. One may argue that the autonomy-supportive parental style may not be suitable for younger adolescents/children (<14 years) or for patients with a more severe eating disorder who need more external guidance to regulate their (eating) behaviour. A Maudsley approach may be more appropriate for these patient populations. Or, more emphasizing the need for more or less external 'structure', another aspect of parental style being relatively orthogonal with the extent to which parents are autonomy-supportive or controlling (Soenens & Vansteenkiste, 2010) may also be helpful in the discussion of the educational and treatment needs of these patients. Indeed, parents may offer structure in a more 'controlling' or 'non-controlling', autonomy-supportive way. In our groups, some attention to this 'structuring' concept was paid by following questions: *'How did you as a family structurally 'manage' the eating disorder during the weekend?', 'In what extent did you 'adopt' the structure that is known from the inpatient treatment?'*

Finally, parents, who are severely burdened by the eating disorder, may interact very critical and negative in the group. They may benefit more from individual parent sessions than conjoint family group sessions (Eisler et al., 2000). But, they are not excluded from group participation since in our opinion the MFT is a particular useful tool for reducing destructive parent-child interactions although they may present a greater challenge for the therapist. Organizing the MFT intervention in a later phase of the inpatient treatment, may also be more beneficial for these families.

The patients often report that the communication with their parents improves by the group (*'MFT gives me the opportunity to discuss issues that I wouldn't discuss at home'*) and that they feel more understanding from their parents. Although they found it helpful that their parents were more informed about the therapeutic program they sometimes experienced the multi-family sessions also as confronting (*"It's confronting but also encouraging to hear how my parents are dealing with my problems."*). Further, parents are mostly positive about their participation in the group. They feel more involved in the inpatient treatment of their daughter (*"By participating in these sessions we experience what our daughters experience in group therapy"*). Further, they mention that new insights were gained how to deal with the eating

disorder. 'Hope' was frequently reported by the families as an important helpful factor (*'seeing the adolescents becoming stronger during the sessions gives hope and strength for the future'*). Despite these positive treatment experiences, some critical comments of the parents were also made about the lack of concrete advice (*"I was expecting more concrete advice about how to deal with my daughter"*). Parents often expect a well described 'script' of how to act in specific situations. Another major and understandable comment was that siblings, who are also often burdened by the eating disorder, were not invited to participate in the group sessions. Finally, some families still needed some additional individual family sessions to address specific familial or personal issues. But, the number and frequency of these sessions were in our opinion reduced by their participation in the group.

Conclusion

Adjunctive multi-family groups may support families with a daughter with an eating disorder during an inpatient treatment. They may simultaneously help the adolescents in gaining a more volitional and autonomous functioning and the parents in providing a more autonomy-supportive environment at home. Further, participating parents feel more involved in the inpatients treatment and the patients feel more understanding and support from their parents.

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CHAPTER 6

An adjunctive multi-family group intervention with or without patient participation during an inpatient treatment for adolescents with an eating disorder: a pilot study¹⁰

This study reports on a pilot study of a family group intervention with or without patient participation adjunctive to a specialized inpatient treatment for eating disorders (EDs). Participants were 112 female adolescent ED inpatients and one or both of their parents. The parents were invited to participate in an adjunctive multi-family group with patient (MFT) or in a similar multi-parent group without patient participation (MPT). Questionnaires assessing ED symptoms, family functioning and caregiving experiences were administered before and after intervention. Post-intervention results obtained from both patient and parent(s) indicated that improvement in ED symptoms and parental burden occurred after both types of interventions. Family functioning improved differently according to the informant: fathers reported an improvement of general family functioning, patients reported an improvement of problem solving and mothers reported a decrease in problem solving across both formats. This study emphasized the importance of including a multi-informant approach in family interventions.

Introduction

In the treatment of adolescent eating disorders (EDs), there has been a growing interest in bringing families together in a multi-family therapy group format. Multi-family therapy (MFT), is considered to create an excellent therapeutic context to block the central role of the eating disorder (ED) in families (Eisler, 2005). In MFT, family members do not only focus on their own ill relative but also on ED patients of other families, which gives the family members the opportunity to examine their own lives from new perspectives (Asen, 2002). MFT builds on established family therapy (FT) principles (e.g. externalizing the symptom by separating the problem from the person) but also relies more centrally on group processes (e.g.

¹⁰ Depestele, L., Claes, L., Dierckx, E., Colman, R., Schoevaerts, K., & Lemmens, G. (2017). An Adjunctive Multi-family Group Intervention with or without Patient Participation during an Inpatient Treatment for Adolescents with an Eating Disorder: A Pilot Study. *European Eating Disorders Review*. doi: 10.1002/erv.2556

experiencing of communality, learning by observation, modelling, trying out new adaptive patterns of coping). These processes maximize families' own resources and reinforce normative interactions and communication while reducing feelings of helplessness, isolation and shame (e.g. Asen, 2002). To examine the benefits of MFT, few studies have compared MFT with other interventions. Geist, Heinmaa, Stephens, Davis, and Katzman, (2000) compared eight sessions of individual family therapy with eight sessions of family group psycho-education in adolescent inpatients with anorexia nervosa (AN). Both interventions resulted in patients' weight gain and improvement in family functioning but the MFT group was more cost-effective. Gabel, Pinhas, Eisler, Katzman, and Heinmaa (2014) compared a group of 25 AN adolescents who received ED focused family therapy (ED-FT) and MFT in combination with treatment as usual (TAU) with 25 matched control cases who received only TAU. Both groups experienced significant weight restoration, although patients enrolled in ED-FT/MFT were restored to a higher mean percent ideal body weight than those in the TAU group [99.6% ($\pm 7.27\%$) vs. 95.4 (± 6.88); $p < 0.05$]. Eisler et al. (2016) conducted a multi-centre randomized control trial of 167 adolescents with AN who were randomized to either ED-FT or to a combination of ED-FT and MFT. The adolescents in the ED-FT/MFT condition gained more weight and a larger proportion of them (58% in ED-FT vs 76% in ED-FT/MFT) achieved good or intermediate outcome on the Morgan/Russell (Morgan & Hayward, 1988) scores (weight greater than 85% of ideal body weight) after one year of outpatient treatment. Marzola et al. (2015) retrospectively examined the long-term efficacy of an intensive 5-day treatment program in both single-family (S-IFT) and multi-family (M-IFT) settings by evaluating 74 adolescents with AN or ED Not Otherwise Specified (ED-NOS) restricting type. At 30 months follow-up, equal improvements were revealed for S-IFT and M-IFT. Finally, high treatment satisfaction (especially by parents) and low drop-out rates (e.g. Salamiou, Campbell, Simic, Kuipers, & Eisler, 2015) have been reported after MFT.

In sum, MFT shows good results regarding ED symptoms and might be more cost effective than single family therapy. Surprisingly, little attention has been paid to relational outcomes such as family functioning or caregiving experiences. An important body of evidence however shows that EDs severely affect family functioning (Holtom-Viesel & Allan, 2013) and that patients report worse family functioning than other family members (e.g. Ciao, Accurso, Fitzsimmons-Craft, Lock, & Le Grange, 2015). Further, carers of ED patients report significantly more negative caregiving experiences such as experiencing shame or self-blame

compared to parents of healthy controls (Kyriacou, Treasure, & Schmidt, 2008). Only a few studies comparing MFT to single family therapy have investigated relational variables using a multi-informant approach as they report a decrease in negative caregiving experiences (Eisler et al., 2016) and an improvement in family functioning (e.g. Dimitropoulos et al., 2015) in both MFT and single family therapy.

Thus far, to our knowledge, outcome research did not examine the possible benefits of including or excluding the ED patients in MFT. In single family therapy, one study (Eisler et al., 2000) comparing a conjoint with a separated format of ED-FT (patient and parents attended together or separately the sessions), revealed equal outcomes except when families showed high maternal criticism. In that case, outcomes were better in the separate format. Whitney, Currin, Murray and Treasure (2012) compared the effectiveness and acceptability of educational family workshops with individual family work. Some carers found it helpful to have some sessions without the patients since this allowed them to express their difficulties without feeling guilty. Other carers felt that it would have been more helpful for patients to be present during a greater number of the sessions because inclusion and exclusion of the patients for individual tasks may have been uncomfortable for the patients. Further, psycho-educational and skills training for ED carers without the presence of the patients had positive effects on stress and caring difficulties (Zucker, Ferriter, Best, & Brantley, 2005). However, no outcome study focused on the effects of including/excluding ED patients in an MFT intervention, which is one of the major aims of the present study.

Further, MFT research seems to focus mainly on restrictive ED patients with weight gain and menses restoration as primary outcomes (Downs & Blow, 2013). A multi-family intervention for bulimia nervosa in adolescence has been described by Steward, Voulgari, Eisler, Hunt and Simic (2015) but so far, no outcome study was published. However, there is increasing evidence showing that patients with binge-eating/purging behaviour (BP) experience more distress than their non-purging counterparts (Tasca et al., 2012). Previous research also showed more family burden and more family dysfunctioning in families of ED patients with BP (Depestele et al., 2015b, 2016; Sepúlveda et al., 2014) compared to restrictive ED patients. So it seems plausible to hypothesize that the presence or absence of BP behaviour might influence treatment outcome of family interventions.

To involve families more closely in the inpatient care for adolescents, we developed a multi-family therapy during an inpatient treatment for adolescents with an ED (Depestele, Claes, & Lemmens, 2015) which is applicable with (MFT) or without patient (MFT-parents only- MPT) participation. In the current study, we examined whether both interventions (MFT vs MPT) might have differently benefitted families of patients with or without BP behaviours. Thereby, we hypothesized that families of patients with BP behaviour would improve more during an MPT (parents-only) intervention whereas families of restrictive patients would benefit more from a conjoint MFT intervention. This hypothesis is based on the evidence showing higher maternal criticism in families of BN patients compared to families of AN patients (Rienecke, Sim, Lock & Le Grange, 2016) and on the findings of Eisler (2000) that families with high maternal criticism improve more with separate single family therapy than with conjoint single family therapy. Further, a multi-informant approach was used by taking the perspectives of both patients and parents into account and presence/absence of non-suicidal self-injury has been controlled in all analyses because of its strong association with family functioning (Claes, Vandereycken, & Vertommen, 2006).

Method

Participants

This study included 112 female adolescents with an ED and/or one or both of their parents. All patients were admitted to a specialized inpatient unit for EDs. The mean age of the patients was 17.06 years ($SD = 2.15$, range: 14 – 21 years). All patients were still living at home with one or both parents. At the start of the admission, all patients were assessed by the psychiatrist of the unit using a clinical psychiatric interview according to the DSM-IV criteria (American Psychiatric Association, 1994), supplemented with the Eating Disorder Evaluation Scale (EDES; Vandereycken, 1993).

Of the 112 patients, 46 (41%) were diagnosed with anorexia nervosa, restrictive subtype (AN-R), 26 patients (23%) with anorexia nervosa, binge-eating/purging type (AN-BP), 24 patients (21%) with bulimia nervosa and 16 patients (14%) with ED -NOS. Sixty-nine patients (62%) reported a life-time prevalence of non-suicidal self-injury.

For the purpose of this study patients were clustered into two ED subgroups: 60 patients (53.6%; 24 with AN-BP, 26 with BN and 10 with ED-NOS) were diagnosed with BP behaviours (ED-BP) and 52 patients (46.4%; 46 with AN-R and 6 with ED-NOS) without BP behaviour (restrictive behaviour only; ED-R).

The patients' socio-demographic and clinical characteristics are presented in Table 1.

Table 1. Baseline demographic and clinical characteristics of patients involved in the study

	Multi-family intervention (with patient)		Multi-parent intervention (without patient)		Total		
	<i>N</i> = 62		<i>N</i> = 50		<i>N</i> = 112		
Characteristics	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	$\chi^2_{(1)}$
Subtype							
AN-R	26	41.9	20	40.0	46	41.1	0.04
BN	12	19.4	12	24.0	24	21.4	0.35
AN-BP	18	29.0	8	16.0	26	23.2	2.64
ED-NOS	6	9.7	10	20.0	16	14.3	2.41
BP behaviour	34	54.8	26	52.0	60	53.6	0.09
NSSI behaviour	32	51.6	37	74.0	69	61.6	5.86*

Notes. AN-R = anorexia nervosa restrictive subtype; BN = bulimia nervosa; AN-BP = anorexia nervosa binge-eating/purging subtype; ED-NOS = eating disorder not otherwise specified; BP = binge-eating purging; NSSI = non-suicidal self-injury; * $p < 0.05$

Inpatients Treatment Unit

This study was conducted in an inpatient eating disorder unit¹¹ for 35 female adolescents and young adults with an age of 14.5 and older. The inpatient treatment consisted of three phases. First, patients entered a motivation orientation phase (lasting 3 – 5 weeks) to help patients reflect on the pros and cons of changing their eating behaviour and to find out whether the treatment conditions would fit with their viewpoint. If patients decided to continue the therapy after the first phase, they were enrolled in a multidisciplinary treatment program, consisting of group psychotherapy, expressive therapy, psychomotor therapy, socio-therapy, and psychoeducation about food. For adolescents (< 22 years), individual family meetings

¹¹ Eating Disorders Unit, Psychiatric Hospital Alexianen Tienen, Belgium

were organized and an additional multi-family therapy (MFT or MPT) was offered. In total, admission duration varied between 4 and 6 months of which the last 4 weeks could be spent in day treatment, which offered the same therapeutic program as the inpatient treatment during the day. At the end phase of the residential treatment, preparations were made for outpatient care (Van der Kaap – Deeder et al., 2014).

Adjunctive family interventions: multi-family therapy versus adjunctive multi-parent therapy

In line with the unit's rationale, both MFT and MPT interventions promoted an autonomy-supportive parental attitude and the adolescents' autonomy and self-determination. Parents are encouraged to create the conditions supporting their daughters' autonomy in establishing healthy eating behaviour at home (patients go home one night a week and during the weekend) to indirectly increase their daughters' motivation. The focus on the patients' motivational process contrasts with the Maudsley model in which parents are expected to take full responsibility for the eating behaviour of the adolescent during the first phase of the treatment (Eisler, 2005).

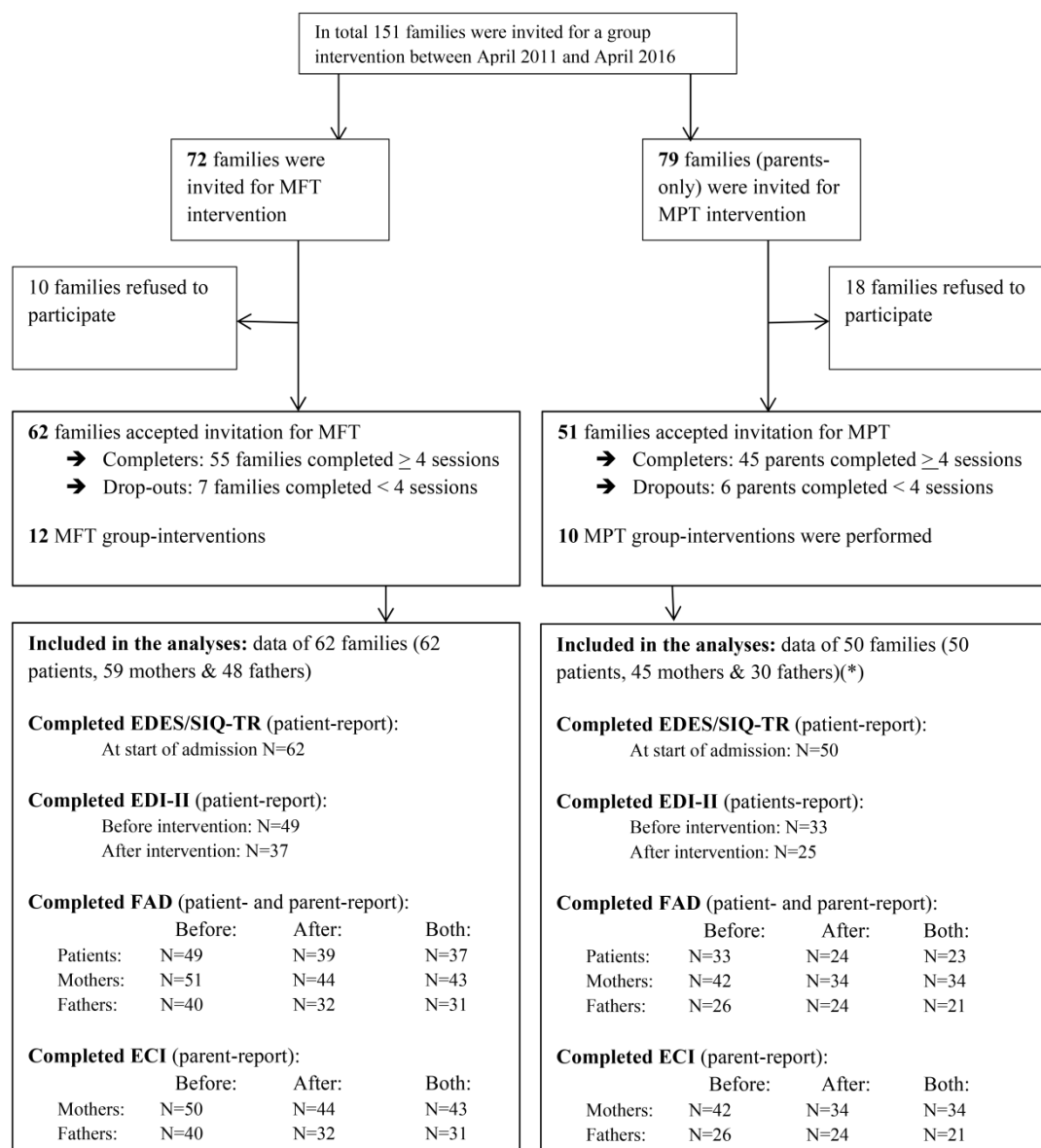
The group was attended by 4 to 6 patients with AN, BN or an ED-NOS and/or their parents. All parents of the patients (< 22 years) in the long-term treatment program were invited to participate in the group. Siblings were not invited for group size reasons. A group cycle involved one introductory 3-hour session, five 2-hour sessions every two weeks and a follow-up session after 6 months. The second and third session were preceded by a dinner with all participants and therapists. All sessions were structured in a similar way: a go-round, a therapeutic exercise and ending with a group discussion. The group program was described in more detail elsewhere (Depestele et al., 2015a).

Procedure

The flow of patients throughout the study is depicted in Figure 1. Between 2011 and 2016, 151 families were assigned to one of the two types of intervention (MFT or MPT). Assignment was non-random and dependent on the time of admission since every six months the type of intervention changed: 60 (80%) of the 72 families accepted the invitation for the MFT intervention and 51 (64%) of the 79 invited families agreed to participate the MPT intervention.

All subjects in the study were invited to complete an assessment before (time 1) and after the intervention (time 2; 8 or 9 weeks later). Before entering the study, all participants gave written informed consent. The study was approved by the Ethical Committee of the Hospital.

Figure 1. Flowchart of study participants, assignment and dropouts



(*) Data of one family were excluded from the study since an extra family intervention was started during treatment due to a crisis situation.

Notes. EDES = Eating Disorder Evaluation Scale; SIQ-TR = Self-Injury Questionnaire-Treatment-Related; EDI-II = Eating Disorder Inventory II; FAD = Family Assessment Device; ECI = Experience of Caregiving Inventory

Measures

To assess ED symptoms, patients completed the *Eating Disorder Inventory-II* (EDI-II; Garner, Olmstead, & Polivy, 1993). The EDI-II consists of 91 items, rated on 7-point forced-choice Likert scale assessing several behavioural and psychological traits of EDs with higher scores reflecting greater severity. Three of the 11 subscales of the EDI-II were used in the present study: drive for thinness, bulimia and body dissatisfaction. In the present study, Cronbach's alpha coefficients for the subscales drive for thinness, bulimia and body dissatisfaction before and after the intervention were respectively 0.86 and 0.91, 0.89 and 0.81, 0.90 and 0.91.

Patients completed the *Self-Injury Questionnaire-Treatment Related* (SIQ-TR) to assess the presence or absence of NSSI. The SIQ-TR (Claes & Vandereycken, 2007) is a self-report questionnaire assessing the presence of five specific NSSI behaviours: biting, scratching, bruising, cutting or burning oneself. An ED patient was assigned to the NSSI category when she answered 'yes' on at least one type of NSSI during lifetime. The Cronbach's alpha coefficient of the SIQ-TR in the present study was 0.63.

Family functioning was rated using the Dutch version of the *Family Assessment Device* (FAD; Epstein, Baldwin, & Bishop, 1983; Dutch version: Wenniger, Hageman, & Arrindell, 1993). The FAD is a 60-item self-report questionnaire consisting of 7 subscales: general functioning, communication, problem solving, roles, behavioural control, affective involvement and affective responsiveness. Higher scores on these scales represent higher levels of unhealthy family functioning. Cronbach's alpha coefficients in this study across the ratings of patients, mothers and fathers before and after the intervention varied for general functioning between 0.87 and 0.91, for communication between 0.82 and 0.86, for problem solving between 0.67 and 0.81, for roles between 0.68 and 0.83, for behavioural control between 0.63 and 0.84, for affective involvement between 0.63 and 0.79, and for affective responsiveness between 0.81 and 0.85.

To measure the caregiving experiences parents completed the Dutch version of the *Experience of Caregiving Inventory* (ECI; Szmukler et al., 1996). The ECI measures the experiences of caring for an individual with a severe mental illness. It consists of 66 items to be scored on a 5-point rating scale (0 = *no difficulties* and 4 = *severe difficulties*). Items are grouped in two dimensions: fifty-two items measure the negative appraisal of care ('total

negative scale'; e.g. experiencing stigma of having a mentally ill relative) and 14 items measure the positive appraisal of care ('total positive scale'; e.g. I have contributed to her well-being). Higher scores on these scales indicate, respectively, more negative or positive caregiving experiences. In the present study, Cronbach's alpha coefficients of the ECI negative scale and ECI positive scale across the ratings of mothers and fathers before and after the intervention varied respectively between 0.93 and 0.96 and between 0.81 and 0.88.

Data-analyses

Chi-square test statistic and t-tests were used to compare baseline characteristics of the patients in the two treatment conditions, to compare differences at initial assessment between treatment completers and treatment dropouts and to detect differences in percentage response dropout between the two treatment conditions and between informants. Potential differences at initial assessment of family functioning and parental caregiving experiences between family members were assessed by means of an analysis of variance with informant as independent variables and the ECI total scores and the FAD subscales scores as dependent variables.

All data were analysed using an intention-to-treat approach based on treatment assignment. Pre-post analysis was used to assess change over time and to relate the changes to covariates, particularly group assignment (MFT versus MPT) and type of patient (with or without BP behaviour). To account for missing data and interdependent responses, we used a linear mixed model, which has been the recommended method for repeated measures (Pinheiro & Bates, 2000). Mixed-effects models using all available data, can properly account for correlations between repeated measures on the same subject, have greater flexibility to model time effects and can handle missing data more appropriately. The flexibility of the mixed models makes them the preferred choice for the analysis of repeated-measures data (Gueorguieva & Krystal, 2004).

To account for the nested structure of the data, the mixed models include random effects for participant and family (i.e., using a case identification code). The models also include age as a covariate, and time (before and after intervention), intervention (MFT and MPT), presence/absence of BP behaviour and informant (mothers, fathers and/or patient; where available) as categorical factors. The parameters of main interest are the fixed effect

interaction terms between time, type of intervention (MFT vs MPT), ED subtype (presence/absence of BP) (time*intervention, time*ED subtype, time*intervention*ED subtype) also including informant where applicable (time*informant, time*intervention*informant). All analyses were performed using SPSS (version 24; SPSS Inc.). A type one error of 0.05 was used throughout all analyses.

Results

Baseline analyses

T-tests showed no significant differences between the subsamples (MPT vs. MFT) with respect to the FAD subscales scores, ECI scores and EDI-II scores at initial assessment. The presence/absence of BP behaviours did not significantly differ between the MPT and MFT subsamples ($\chi^2_{(1)} = 0.09$; *ns*). Since the presence/absence of NSSI significantly differed between both subsamples (51.6% in MFT and 74.0 % in MPT; $\chi^2_{(1)}=5.87$; $p < 0.05$) (Table 1) NSSI was included as a control variable rather than an independent variable in all further analyses.

Additionally, a significant age difference was found between the MPT and MFT subsamples ($M = 17.42$ ($SD = 2.12$) in MFT vs. $M = 16.62$ ($SD = 2.13$) in MPT; $t(104.95) = 1.98$, $p = 0.05$). Since age showed small but significant positive correlations with several baseline FAD subscales scores (general functioning, communication, problem solving and affective responsiveness) (with r varying between 0.14 and 0.22; $p < 0.05$), age was also added as a control variable in all further analyses.

Further, no significant difference was found in percentage treatment dropout (i.e. participating of parents in less than 4 sessions) in both groups (MFT vs. MPT): 7 (11.3%) families completed less than 4 sessions in the MFT intervention and 6 (12.0%) families completed less than 4 sessions in the MPT intervention ($\chi^2_{(1)} = 0.01$, *ns*). Presence of BP and/or NSSI did not differ between treatment dropouts and treatment completers. FAD, ECI and EDI-II scores at initial assessment did not differ between treatment completers and treatment dropouts. Percentage response dropout did not significantly differ between patients, mothers and fathers ($\chi^2_{(1)} = 2.39$; *ns*) nor between the MFT and MPT intervention ($\chi^2_{(1)} = 0.15$; *ns*) (see Figure 1).

Finally, patients reported significantly higher baseline scores on several FAD subscales than their mothers (communication, $p < 0.001$; problem solving, $p < 0.001$; affective responsiveness; $p < 0.001$; behavioural control, $p = 0.05$) and compared to their fathers (roles, $p < 0.001$; affective involvement, $p < 0.05$; behavioural control, $p < 0.05$). Mothers reported significantly higher scores than fathers on both the ECI negative total score ($p < 0.001$) and the ECI positive total score ($p < 0.001$).

Treatment outcome analysis for ED

Eating Disorder Symptoms

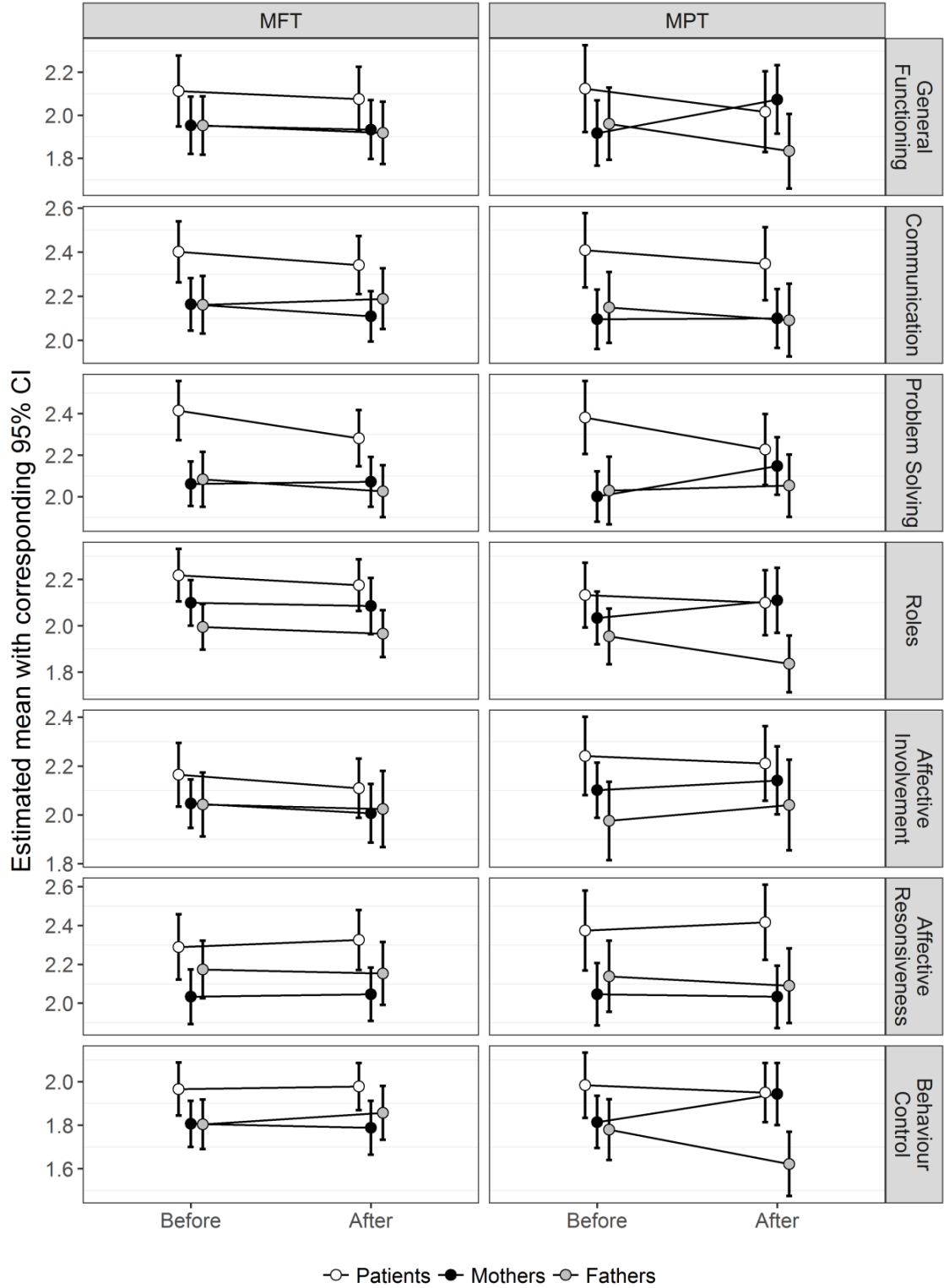
The mixed model analyses showed no significant three-way interaction between time, intervention (MFT vs MPT) and ED subtype (BP behaviour present/absent) for the EDI-II subscale scores. A main effect of time was found for drive of thinness ($p < 0.001$) and body dissatisfaction ($p < 0.001$): both scales improved independent of type of intervention, type of reporter or presence/absence of BP behaviour. An interaction between time and BP behaviour was found for bulimia ($p < 0.05$): BP patients reported a significant improvement ($p < 0.01$) whereas restrictive patients reported no change.

Family functioning

The mixed model analyses showed no significant three-way interaction between time, intervention (MFT vs MPT) and ED subtype (BP behaviour present/absent) for the FAD subscale scores. The analyses showed significant interactions between time (before vs. after treatment) and informant (patient, mother, or father) across both interventions and both ED subtypes for two FAD subscales: general family functioning ($p < 0.05$) and problem solving ($p < 0.01$). Subsequent analyses showed that patients ($p < 0.01$) reported an improvement on problem solving whereas mothers reported decreased problem solving ($p < 0.05$). Fathers reported an improvement in general functioning ($p < 0.05$) (Table 2). A three-way interaction between time, intervention and informant appeared for behavioural control: fathers reported a healthier behavioural control after the MPT intervention ($p < 0.05$); whereas they did not report any changes after the MFT intervention. Mothers on the contrary reported a worsening of behavioural control after the MPT ($p < 0.05$); whereas no difference was reported by them after the MFT (Table 2). Further, the analyses showed an interaction between time (before and after intervention) and ED subtype for communication ($p < 0.01$): Communication improved in families of restrictive patients ($p < 0.01$) but not in families of BP patients across

both interventions and independently of informant. Finally, no difference in time was found for the subscales affective involvement and affective responsiveness (Figure 2).

Figure 2. Estimated marginal means: pre post measures family functioning (FAD) according to type of intervention (MFT vs. MPT) and to reporter (patient, mother, father)

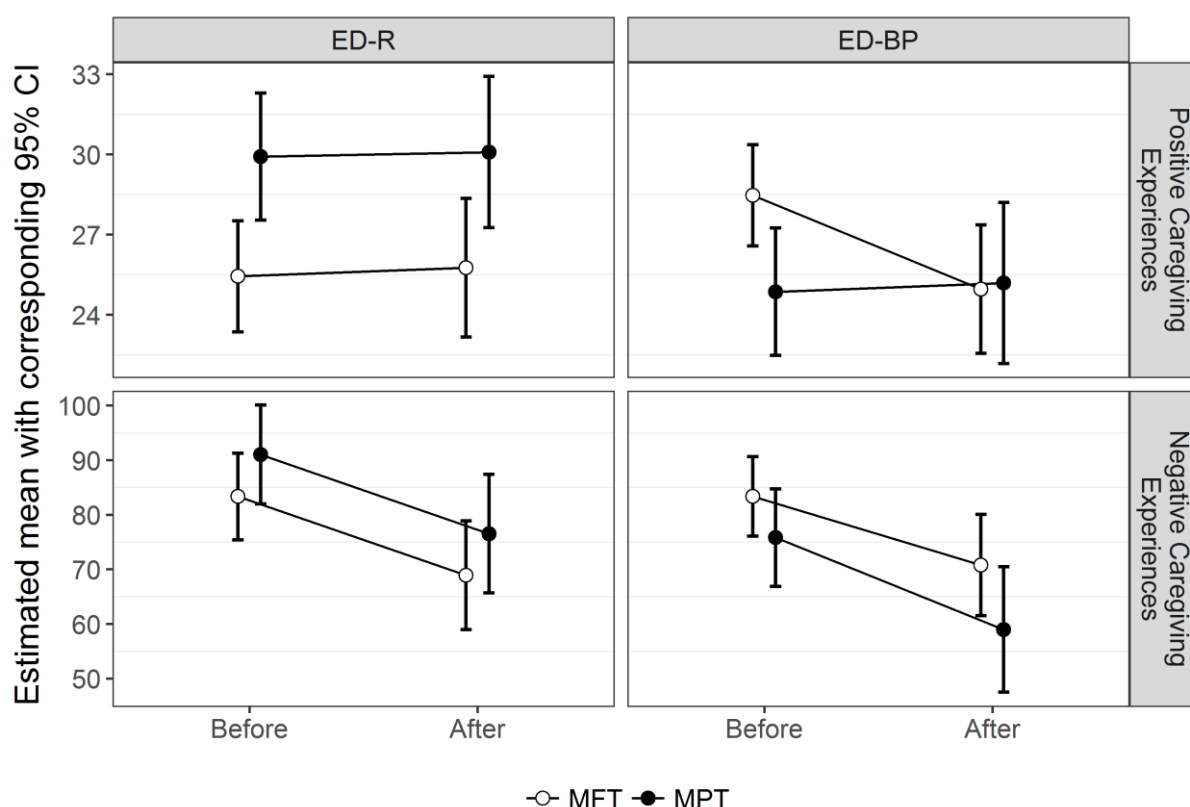


Notes. FAD = Family Assessment Device

Caregiving experiences

The linear mixed model analyses revealed a three-way interaction between time, intervention (MFT vs MPT) and ED subtype for the ECI positive total score ($p < 0.01$): parents of BP patients reported a significant decrease ($p < 0.01$) in positive caregiving experiences after the MFT intervention but not after the MPT intervention; whereas no difference between both interventions were found for parents of restrictive patients. There was no significant three-way interaction found for the ECI negative total score. However, a main effect of time emerged: the ECI negative total score improved significantly ($p < 0.001$) across both interventions independent of reporter or BP behaviour (see Figure 3).

Figure 3. Estimated marginal means: pre post measures Experience of Caregiving (ECI) according ED subtype



Notes. ED-R = Eating Disorder of Restrictive Type; ED-BP = Eating Disorder of Binge-eating/Purging type

Discussion

In this pilot study, we investigated the benefits of an adjunctive multi-family group intervention with or without patient participation during an inpatient treatment for patients with and without BP behaviour thereby using a multi-informant approach and controlling for age and the presence/absence of non-suicidal self-injury.

First, we found that ED symptomatology (i.e. drive for thinness and body dissatisfaction) improved across both interventions (MFT vs MPT) independently of presence/absence of BP behaviour. Bulimia symptoms, of course, only improved in patients with BP behaviour. This is in line with other studies showing benefits of treating families with multiple families together either in a conjoint – patient participation - format (Eisler et al., 2016; Gabel et al., 2014) or in a parents-only format (e.g., Goddard, Macdonald, & Treasure, 2011). Also in other domains of psychopathology (e.g., depression and psychosis) research revealed benefits of both multi-family interventions with or without patient participation (Leff et al., 1989; Lemmens et al., 2009). However, the present study adds to existing research by showing improvement after a multi-family intervention (either with or without patient participation) in patients with BP behaviour, which until now only has been demonstrated in single family therapy (Le Grange, Lock, Agras, Bryson & Jo, 2015). However, due to the lack of a control group it is difficult to draw any conclusion about the role of MFT and MPT intervention in this improvement: it is plausible that the found benefits are related to the progress that is made in the inpatient treatment program and not to the adjunctive family intervention specifically.

In the present study, improvement of family functioning did not differ according to intervention type (MFT vs. MPT) nor between ED subtype (BP behaviour presence/absence). Rather, family outcome measures (i.e., problem solving, general functioning, roles) were informant-dependent. Interestingly, problem solving improved according to the patients but deteriorated according to the mothers. First, this finding might be related to the autonomy-supportive climate of the inpatient therapy: patients are intensively supported in using their own problem solving skills whereas mothers are less intensively supported and might become uncertain about how to deal with problems in a climate that explicitly empowers the patients and gives less responsibility for eating behaviours to the parents. Second, this finding might indicate that patients' and mothers' perspectives converge to a more realistic view on their family functioning. In our sample, the amount of difference between patients' and mothers' FAD-

problem solving scores significantly decreased during the interventions (before intervention: $M = 0.34$ ($SD = 0.53$); after intervention $M = 0.14$ ($SD = 0.50$); $t(44) = 2.58$; $p < 0.05$). This convergence might be an important benefit since differences in viewpoints between family members might contribute to family dysfunction and to the continuation of ED symptoms (e.g., Dancyger, Fornari, Scionti, Wisotsky, & Sunday, 2005).

Additionally, the outcome of the MFT versus MPT intervention concerning 'behavioural control' (e.g., "We know what to do in an emergency") was different according mothers and fathers. Fathers reported healthier behavioural control in their family after the MPT intervention but not after the MFT intervention. Mothers, on the contrary, reported unhealthier behavioural control after the MPT intervention but not after the MFT intervention (see Figure 2). Gender differences in coping strategies might help to understand this mechanism (Tamres, Janicki, & Helgeson, 2002): Mothers, who tend to respond to stressors at home with even more caring for their child might experience more difficulties to leave the responsibility for eating behaviours to their daughter, especially when they have to learn this stance in absence of their daughter (MPT intervention). By contrast, fathers may find it easier to support the independence of their daughters in general, and in the case of ED in particular.

Further, we found that across both interventions and independent of informant communication improved in families of restrictive patients but not in families of BP patients. First, this might due to worse baseline measures of family functioning of BP patients compared to those of restrictive patients (e.g. general functioning rated by restrictive patients ($M = 1.94$; $SD = 0.56$) versus BP patients ($M = 2.25$; $SD = 0.63$): $t(80) = 2.34$; $p < 0.05$). Second, it is possible that - during both interventions - skills related to managing restrictive behaviour are more discussed than skills related to managing BP behaviour. This may indicate that both interventions (i.e. MFT and MPT) should focus more on increasing intra-family communication in BP families. This in line with the MFT program for bulimia nervosa in adolescence which is developed by Steward et al. (2015) providing specific attention to the need to increase communication between family members, strategies to reduce high levels of criticism or hostility, and skills to manage emotion dysregulation and low tolerance for negative emotions. However, a thorough comparison of these findings with other studies is difficult since only very few outcome studies did include measurements of family functioning using a multi-informant approach.

Concerning caregiving experiences, it was found that negative caregiving experiences significantly decreased across both interventions independent of presence/absence of BP behaviour and independent of type of reporter. This is in line with previous findings showing that multi-family interventions either with or without patient participation result in a decrease of negative caregiving experiences (Eisler et al., 2016). This is probably due to the opportunity in both formats to talk to others in a similar situation, to share problems and to gain new insights and perspectives (e.g. Engman-Bredvik, Carballeira Suarez, Levi, & Nilsson, 2016).

Remarkably, parents of BP patients reported less positive caregiving experiences after the MFT intervention compared to the MPT intervention, whereas for parents of restrictive patients no difference between both interventions appeared. This might be explained by a baseline difference between the MFT and MPT condition in positive caregiving experiences (see Figure 3). However, this difference was large but not significant. Thus, it might be easier for them to discuss BP issues with the patient not present. Further, it is possible that parents spend more time with talking about restrictive behaviour than about BP behaviour, especially in presence of patients (e.g. shame). Finally, in contrast with the Maudsley approach (Eisler, 2005) a crucial feature of both interventions examined here is that parents are recommended *not* to take responsibility for their daughter's eating behaviour but to support their daughters' autonomy (Depestele et al., 2015a). It is possible that this autonomy supportive parental style is more naturally approved in a conjoint format than in a parents-only format. Future research however is needed to investigate these presumed parent-daughter processes involved in the MFT versus MPT interventions.

Some limitations of the study need to be addressed. Important shortcomings of the study are the small sample size, the inpatient setting, the add-on treatment, the use of heterogeneous groups (restrictive and BP patients together), the lack of a control group, the lack of follow-up after treatment, and the non-random treatment assignment. These shortcomings require that any conclusion drawn must be treated with caution. However, having these limitations in mind the results of this study shows the potential role and benefits of multi-family therapy in the treatment of eating disorders. First, this study shows the importance of involving parents during an inpatients treatment in an intervention with or without patient participation. Second, the study shows the importance of using a multi-informant approach to accurately evaluate a family treatment intervention since benefits might be assessed differently by patients,

mothers and fathers. Further research focussing on the experience of therapeutic factors using a multi-informant approach in multi-family work is necessary to understand possible underlying mechanisms of this finding and to provide further insight into which processes are important in multi-family group therapy.

Conclusion

We investigated the effects of multi-family therapy with or without patient participation both from the viewpoint of the patients and the parents. Patients were classified as having anorexia restrictive type or engaging in binge-eating/purging behaviours. Both interventions resulted in improvement in ED symptoms and parental caregiving experiences across both ED subtypes. In general, family outcome measures showed improvement in family functioning according to the patients and fathers, but not to the mothers, across both interventions and both ED subtypes. Our study indicates the importance of including a multi-informant approach in family interventions.

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CHAPTER 7

GENERAL DISCUSSION

In this PhD dissertation two main lines of research were discussed. First, we examined the associations between the presence/absence of binge-eating purging (BP) behaviours and non-suicidal self-injury (NSSI) and family interactions (family functioning, caregiving experiences and parental style) in adolescents with an eating disorder (ED). Secondly, we developed a multi-family group intervention with or without the ED patient (MFT: multi-family therapy; MPT: multi-parent therapy) and studied its effectiveness on ED symptoms, family functioning and caregiving experiences in an inpatient unit for the treatment of EDs.

In this final chapter, we present (1) a discussion of our main research findings across the different studies (Chapters 2-6) followed by (2) an overview of the strengths and limitations of these studies and offer some ideas for future research. Finally, (3) we discuss the implications of our findings for the clinical practice of multi-family group therapy in ED patients. This final discussion provides a general and integrated perspective on the main findings across our studies including implications for theory, research and clinical practice.

1. Overview of our research findings

Research line 1: Family interactions in ED patients

In the first line of research, we investigated the associations between the presence/absence of BP behaviours and/or NSSI in ED patients and family functioning (Chapter 2), parental caregiving experiences (Chapter 3) and psychological controlling versus autonomy-supportive parenting (Chapter 4). In all three studies, we applied a multi-informant approach to take different family members' perspectives (patients, mothers, fathers) into account.

First, we found that family interactions in ED patients are worse when the ED patients engage in BP behaviours and/or NSSI. More specifically, the presence of NSSI in the ED patients was positively correlated with negative caregiving experiences among parents (Chapter 3) and BP behaviours in the ED patients were positively correlated with psychological controlling parenting in mothers (Chapter 4). Further, the presence of NSSI in BP patients – but not in

restrictive patients (= without BP behaviours) - was associated with poorer family functioning reported by both mothers and fathers (Chapter 2). These findings across the three studies are in line with previous research showing more conflictual and disorganised family functioning in ED patients with NSSI (Claes, Vandereycken, & Vertommen, 2006), more affective problems within the family and higher levels of parental criticism in ED patients with BP behaviours (e.g., Casper & Troiani, 2001; Rienecke, Sim, Lock, & Le Grange, 2016; Tozzi et al., 2005). Moreover, by simultaneously investigating the associations between BP behaviours and NSSI in ED patients and family interactions, our three studies contribute to the existing literature by providing evidence for the differential relationship between BP behaviours/ NSSI symptoms and different aspects of family interactions. As far as we know, these differential relations between BP and NSSI symptoms in ED and family interactions have not yet been investigated. However, further research is required to confirm our findings but also to explore possible underlying mechanisms in order to understand the differential relations between BP/NSSI and family interactions more in depth.

Secondly, our results showed that ratings of family interactions differ depending on the informant (patients, mothers or fathers). Patients described their family as being more dysfunctional than their parents (mothers, fathers) and fathers reported the healthiest family functioning (Chapter 2). Mothers of ED patients experienced significant more negative caregiving experiences and more positive caregiving experiences compared to the fathers (Chapter 3). Further, paternal autonomy support was rated significantly higher by fathers than by patients but no significant differences were found between mothers' and patients' reports on maternal autonomy support nor between patients' and parents' reports on parental psychological control (Chapter 4). Our findings are in line with previous research showing a general tendency for parents to rate family interactions more positively than their children with an ED (Ciao, Accurso, Fitzsimmons-Craft, Lock, & Le Grange, 2015). In addition, our studies (Chapter 2 & 4) indicated that patients' perspectives mostly differ from their fathers' perspective on family functioning (Chapter 2 & 4). This finding is in contrast with the findings of Dancyger, Fornari, Scionti, Wisotsky and Sunday (2005) reporting the largest discrepancies between patients and mothers. In sum, our studies provide further evidence for discrepancies in family members' perceptions of family interactions in ED patients.

Thirdly, we found differential associations between the presence/absence of BP/NSSI and family interactions depending on the informant (patient, mother or father). For example, in

Chapter 2, both parents - but not patients - reported poorer family functioning in the presence of both BP and NSSI. Mothers of restrictive patients with NSSI were more positive about their family functioning; whereas fathers of restrictive patients did not report any difference in family functioning between patients with or without NSSI (Chapter 2). Further, the mothers - but not the fathers - reported less positive caregiving experiences in the presence of BP behaviours (Chapter 3). Finally, we found a positive association between BP behaviours and psychological controlling parenting only in the mothers (and not in the fathers) (Chapter 4). These findings across the three studies indicate that especially mothers seem to be sensitive for specific ED characteristics. This might result from the fact that mothers are more strongly involved in the nutritional aspects of parenting (e.g., preparing meals) and might observe specific ED behaviours of their daughters more frequently than fathers (Raenker et al., 2013). Further, gender differences in coping strategies might also add to the difference between mothers and fathers: women/mothers tend to respond to these stressors with caring for the children and seeking support of other people ('tend-and-befriend'); whereas men/fathers tend to respond with avoidance/withdrawal or conflict ('fight-or-flight') to interpersonal stressors (e.g., relationships and health of relatives; Tamres, Janicki, & Helgeson, 2002).

Research line 2: A multi-family group intervention for families with a patient with an ED

In the second line of research, we firstly described the conceptual framework and the development of a multi-family group intervention to empower families/parents of adolescents with an ED during a specialized inpatient treatment (Chapter 5). Secondly, we investigated - in a pilot study - the treatment effects of a multi-family group intervention - with or without patient participating (MFT versus MPT) - on ED symptoms, family functioning and parental caregiving experiences (Chapter 6). To address the possibility that families were responding differently to family treatment interventions depending on the presence/absence of BP behaviours and/or NSSI in their child with ED, we also examined if the outcome of these interventions differed according to ED subtype (BP behaviours vs restrictive type) while controlling for the presence/absence of NSSI. Unfortunately, no conclusions can be drawn concerning the role of the presence/absence of NSSI in the ED patients based on our study; and this since the presence/absence of NSSI significantly differed between both treatment conditions (MFT vs. MPT). Therefore, NSSI was included as a covariate in the analyses. Finally, again a multi-informant approach was used to assess family variables.

First, we can conclude that we did not find any major differences between the MFT and MPT intervention on ED symptoms, family functioning and parental caregiving experiences; findings which are in line with other studies (Eisler et al., 2016; Gabel, Pinhas, Eisler, Katzman, & Heinmaa, 2014; Goddard, Macdonald, & Treasure, 2011). The similar effect of both interventions may partly be explained by the fact that both interventions were add-on treatments during an intensive inpatient treatment program. Therefore, it is likely that the benefits of both interventions (MFT and MPT) are related to the progress that patients made in their eating behaviours during the regular inpatient treatment program (e.g., Ciao et al., 2015). However, the present study adds to existing research by the comparing of a conjoint format (MFT) with a parents-only format (MPT) of the multi-family intervention. As far as we know, no outcome study has investigated the possible benefits of including or excluding the ED patient during a multi-family group intervention so far.

Secondly, we found no differences in improvement of family interactions (i.e., caregiving experiences; family functioning) between families of patients with and without BP behaviours except for 'communication', which improved in families of restrictive patients but not in families of patients with BP behaviours. The similar findings for patients with and without BP behaviours are in line with the substantial evidence base of single-family therapy for adolescents with anorexia nervosa (AN) (e.g., Eisler, 2005) and the more modest results of single-family therapy for adolescents with bulimia nervosa (BN) (Le Grange, Crosby, Rathouz, & Leventhal, 2007; Le Grange, Lock, Agras, Bryson, & Jo, 2015). However, the finding that communication improved only in families of restrictive patients may result from the fact that family interactions are worse in families of BP patients (e.g., Chapter 4). Moreover, in the sample of our pilot study baseline measures of family functioning of BP patients were worse compared to those of restrictive patients (e.g., patient-reported general functioning). In addition, it is possible that problems and skills related to managing restrictive behaviour are more discussed than skills related to managing BP behaviour in both types in intervention.

Furthermore, the outcome of the MFT versus MPT intervention did not differ in relation to the presence/absence of BP behaviours. This contrasts with our initial hypothesis that BP patients would improve more after the MPT intervention than after the MFT intervention. This hypothesis was partly based upon the findings of a single-family study (Eisler et al., 2000) that revealed no major differences in the outcome of a conjoint format of ED-FT compared to

a separated version of ED-FT (patient and parents attending different sessions) except for patients with high levels of maternal criticism towards the patient. For these patients, the separated single-family therapy showed significant more 'good' or 'intermediate' outcomes on the Morgan/Russell scales (Morgan & Hayward, 1988) compared to the conjoint single-family therapy. However, our initial hypothesis that ED patients with BP behaviours - who are also characterized with higher levels of maternal criticism (Rienecke, Sim, Lock, & Le Grange, 2016) - was not confirmed by our results. Nevertheless, comparing our findings with the study of Eisler et al. (2000) is difficult since maternal criticism was not explicitly measured in our study. Moreover, there is an essential difference between a multi-family group format and the single-family therapy format that is investigated in the study of Eisler et al. (2000): the presence/absence of other families. The presence of other families and the inclusion of different family members (mothers, fathers and/or daughters) in both interventions probably has a beneficial effect on intra-familial communication patterns which might become more socially appropriate and less emotional/conflictual (e.g., Asen, 2002). Additionally, focusing on other families in a multi-family group format (MFT or MPT) might help each family member to re-examine their own problems from new perspectives. In sum, the present study adds to existing research by showing that both interventions (MFT and MPT) improve ED symptoms, parental caregiving experiences and family functioning (except for communication) not only in restrictive patients (e.g., Eisler et al., 2016) but also in patients with BP behaviour - which until now only has been demonstrated in single-family therapy for patients with BN (Le Grange, Lock, Agras, Bryson, & Jo, 2015).

Thirdly, the second research line shows that the outcome on family functioning of both interventions (MFT and MPT) differs depending on the informant (patients, mothers, fathers). Patients reported an improvement of problem solving, mothers reported a deterioration in problem solving and fathers reported an improvement of general functioning after both interventions (Chapter 6). These findings might be explained by the fact that patients are intensively supported in using their own problem solving skills during the inpatient treatment program whereas mothers are less intensively supported than the patients and might become uncertain about how to deal with problems in a climate that explicitly empowers the patients and gives less responsibility for eating behaviours to the parents. Fathers, who reported an improvement in general functioning, might be more optimistic in their view on their family functioning because they spend less time providing food and emotional support to their

daughter compared to the mothers (Raenker et al., 2013). Concerning the contrasting 'Problem Solving' scores reported by the patients and the mothers, the amount of difference between patients' and mothers' 'Problem Solving' scores significantly decreased during the interventions ($p < 0.05$), which might indicate that the patients' and mothers' perspectives converge to a more similar view on their family functioning. The convergence of family members' perspectives found in our study might be established by the frequent use of cross-family exercises during the multi-family group interventions (e.g., reconstituted families exercise in Chapter 5). These cross-family discussions often help parents to better understand their daughters' problems and feelings and vice versa which might result in decreased parent-daughter discrepancies in perceived family functioning.

Furthermore, a differential outcome for MPT versus MFT was found for mothers versus fathers concerning 'Behavioural Control' (e.g., "If the rules are broken, we don't know what to expect"): the fathers reported an improvement in behavioural control after the MPT intervention; whereas the mothers reported poorer behavioural control after MPT. After the MFT intervention no differences in behavioural control were reported neither by mothers nor by fathers. This mother-father discrepancy in the outcome of the MPT intervention might be explained by gender differences in coping mechanisms (Tamres et al., 2002). Mothers, who tend to respond to stressors at home with caring even more for their child might experience more difficulties to find a way to support their daughters' independency, especially in absence of their daughter. Fathers, often spending less time with their daughter and being less emotionally close, might have less difficulties in leaving the responsibility for eating behaviours to their daughter and in learning this stance in absence of their daughter.

It is difficult to compare these informant-related differences in outcome in depth with previous research since only few studies included family member's perspectives in the investigation of the outcome on family measures of (multi-)family therapy (e.g., Ciao et al., 2015). As far as we know, only Ciao et al. (2015) reported a differential improvement in family functioning between a single-family treatment versus an individual adolescent-focused therapy for adolescent AN depending on the informant (i.e., the mother-reported affective involvement improved in the family treatment and got worse in the individual treatment; whereas patients' and fathers' ratings remained stable).

Finally, it is possible that the informant-related differences found in the outcome of both interventions (MFT and MPT) may be explained by the fact that during multi-family group interventions many interactions take place and several issues are discussed which might evoke different therapeutic processes among patients, mothers and fathers (e.g., Lemmens, Eisler, Dierick, Lietaer, & Demyttenaere, 2009). However, to understand the possible underlying mechanisms of the informant related discrepancies in the outcome of multi-family group interventions further research focusing on the experience of therapeutic factors using a multi-informant approach is needed.

2. Strengths and limitations of the studies and avenues for future research

As summarized above, the findings of the present dissertation provide an important replication and extension of previous findings focusing on the relationship between BP behaviours/NSSI and family interactions and on the use of multi-family group interventions in adolescents with EDs.

A first strength of our studies is the fact that all studies were conducted in a clinical setting including patients with severe EDs needing inpatient treatment. Secondly, families included in the outcome study received an original treatment program based on both theoretical insights and clinical experience and practice. Thirdly, the pilot outcome study included relational outcome variables (caregiving experiences and family functioning) which until now received only few attention in research on multi-family interventions in EDs (e.g., Eisler et al., 2016). Fourthly, all studies in this dissertation used data from multiple informants (patients, mothers, fathers) in order to understand the relative importance of different family members' perspectives on family interactions. It offers important additional data compared to previous studies using patient-only information. Finally, all measures were assessed by means of validated assessment instruments.

However, besides the strengths of our studies, several limitations across the different studies need to be addressed. The following section summarizes the most important limitations of the different studies concerning design, sample characteristics and assessment instruments and will address some important issues that should be included in future research.

Design

The designs of the studies in Chapter 2, 3 and 4 were cross-sectional in nature with baseline measures assessed at the beginning of admission. Family functioning, parental caregiving experiences and parental style were investigated in separate cross-sectional studies. This limits our knowledge on temporal order and on causal relationships between ED characteristics and family variables, and no interpretations concerning the directionality of relationships can be induced. However, the present PhD dissertation generates specific hypotheses that could be tested in future research. For example, the associations between ED symptoms and family functioning can be hypothesized to be bidirectional: the ED psychopathology might affect the family functioning (e.g., BP behaviours and NSSI contribute to greater family dysfunction than BP behaviours alone) and family dysfunction (e.g., psychological controlling parenting) might also pose a risk for the development of BP behaviours. Yet, to fully understand the interplay between ED symptomatology and/or these family variables (see Chapter 1, Figure 1) future research should use longitudinal designs investigating family variables to get insight in causal relationships between ED characteristics and these family variables.

Secondly, an important limitation of the pilot study in Chapter 6 is the non-random assignment of patients and/or their parents to the MFT versus MPT interventions because assignment was fixed depending on the time of admission (every six months the type of intervention changed). It is possible that the non-blind assignment to MFT versus MPT intervention revealed a selection bias. In the MPT condition more parents refused to participate showing a small advantage of the interventions in favour of the MFT condition (see Chapter 6, Figure 1). Parents might have been less likely to participate in the intervention in absence of their daughter (MPT) than in presence of their daughter (MFT). However, no significant difference was found in percentage treatment dropout (i.e., participation of parents in less than 4 sessions) nor in percentage response dropout between both conditions (MFT and MPT) (see Chapter 6).

A third limitation across all studies is the lack of control groups. Regarding Chapter 6, it is difficult to draw any conclusion on the role of both interventions (MFT and MPT) in the improvement in ED symptoms, family functioning, and parental caregiving experiences due to the lack of a control group: it is plausible that the found benefits are related to the progress

that is made in the inpatient treatment program itself and not to the adjunctive MFT intervention specifically. Improvement in family functioning might also be the result of the remission of the ED itself (e.g., Ciao et al., 2015). Therefore, future research should use a blind randomized controlled trial.

Fourthly, in Chapter 6 pre-treatment data were assessed before the start of the family intervention and not straight from the beginning of the admission, possibly influencing results since some patients might already have made some improvement between the start of the admission and the start of the family intervention.

Fifthly, it would have been interesting to investigate how ED symptoms and family variables evolve after the multi-family treatment intervention. Future research should include follow-up data to examine ED symptoms and family interactions in the post-treatment period.

Sample characteristics

Concerning sample characteristics, the relative small sample sizes of the studies included in this dissertation (ranging from 53 to 123 participating families; see Table 1 in Chapter 1) are another limitation. Other recent family intervention studies in ED patients used comparable sample sizes (e.g., $N = 121$ in Ciao et al., 2015; $N = 82$ in Madden et al., 2015; see Appendix B). However, Eisler et al. (2016) more recently conducted a multi-centre RCT on 167 adolescents and their parent(s). Thus, future research should try to increase the sample size of MFT studies by conducting studies over longer periods of time or by offering the treatment simultaneously by different therapists in different places (e.g., multi-centre study).

Secondly, all the samples were recruited in a clinical context (e.g., specialized inpatient treatment unit) and were characterized by the presence of severely ill female ED patients often showing high comorbidity (e.g., Turner et al., 2014) to an extent that they need hospitalization. This surely adds to the strengths of the findings but also limits the generalizability of the results towards an outpatient population and towards male patients.

A third shortcoming relates to the representativeness of the samples. In Chapter 6 (intervention study), some participants refused to participate in the study and did not complete questionnaires which might have biased the outcome results. However, since no data about the 'non-research participants' were available, it is difficult to draw any conclusion

if the selection was representative for the participating population (e.g., concerning the participants' motivation level). To account for missing data and interdependent responses we used a linear mixed model because mixed-effect models use all available data and can handle missing data more appropriately than for instance the repeated measures analyses of variance (Pinheiro & Bates, 2000).

Finally, across all studies, no distinction was made between BP patients with or without a history of restrictive ED and vice versa. As the course of restrictive ED subtypes often includes a crossover to BP behaviours (Tozzi et al., 2005), future research using a longitudinal design could be valuable to examine under which circumstances (e.g., family factors) patients shift from a restrictive to a BP subtype.

Assessment instruments

First, family functioning, caregiving experiences and parenting style were assessed by self-report questionnaires. The single use of self-report questionnaires has some disadvantages such as the possible biasing effect of the current mood or conflicts of the reporter (e.g., a recent conflict within the family). To decrease this possible biasing effect, future research could benefit from adding other assessment techniques such as observations to assess parenting behaviours and family functioning. Direct observation provides additional information (in the sense that behaviour is directly seen by investigators) but the time frame is limited and might not fully reflect daily interactions at home and little information is available about the internal experiences of the family members (Gardner, 2000; Hayden et al., 1998). Therefore, future research could benefit from a mixed method design including both self-report questionnaires and observational methods.

Secondly, we used only general – non-ED specific – measures of family functioning, parental caregiving experiences and parental style. For example, the Experience of Caregiving Inventory (ECI; Szmukler et al., 1996) was used in Chapter 3. This questionnaire was initially developed to assess the burden on family members of patients with a psychosis, but has also been used in previous research on burden on parents of ED patients (Treasure, Murphy, Szmukler, Todd, Gavan, & Joyce, 2001). Other questionnaires (e.g., Eating Disorders Impact Scale; Sepúlveda, Whitney, Hankins, & Treasure, 2008) have been developed to assess the specific caregiving burden of both AN and BN and should be translated and validated to use

it in future research. Further, in Chapter 4, parental style (psychological control and autonomy support) was measured using general and non-ED specific questionnaires. Consequently, future research should include measurements of general parental style and specific parenting behaviours toward eating behaviours because family members might interact differently in the context of ED specific behaviour compared to their general style of interaction.

Thirdly, all studies in this dissertation included multiple informants (patients, fathers, and mothers), which is a strength of the dissertation. Nevertheless, our studies focused only on the affected adolescent and their parents. However, the patients' perception of family interactions might be influenced by the ED itself. Therefore, future research might benefit from including the perspective of healthy siblings also (Halvorsen, Rø, & Heyerdahl, 2013).

Fourthly, parental awareness of BP behaviours and NSSI in their child was not measured in our studies although this might play a role in reported family interactions (e.g., Baetens et al., 2014; Steinberg et al., 2004). For example, parental awareness of BP behaviour in their adolescent may elicit parental feelings of powerlessness and incompetence leading to an increase in psychologically controlling behaviour toward a daughter with an ED (Pomerantz & Eaton, 2001). Thus, future research should take parental awareness of symptoms into account.

Finally, the measures used in the pilot study (Chapter 6) focused only on outcome of ED symptoms and some relational outcome measures. Further research is needed to identify the underlying mechanisms of change leading to these beneficial outcomes in multi-family work. Previous research on multi-family group interventions for major depression showed that different therapeutic factors (e.g., modelling and guidance from the therapist) were related to improvement of depressive symptoms of the patient (Lemmens et al., 2009). Future research should identify which therapeutic factors are important for ED patients and their parents during a multi-family group therapy. Further, it should investigate whether these factors might differ between an MFT versus MPT intervention, between patients with or without BP behaviours; or between mothers, fathers and patients. Finally, future research should examine which specific therapeutic factors are associated with an improvement in ED and relational outcomes.

3. Recommendations for the clinical practice of MFT work in ED patients

The main goals of this dissertation were to increase our understanding of the relation between ED characteristics and family interactions and to investigate the effectiveness of a multi-family group intervention with or without patient participation and the potential role of ED characteristics in it. In the following paragraphs, we will discuss some important implications of our findings for the clinical practice of MFT work in ED patients.

First, BP behaviours and NSSI should be assessed in ED patients (see Chapter, 2, 3 and 4) since their families are at increased risk for worse family functioning, more negative caregiving experiences and higher levels of psychological control.

Secondly, family interventions should explicitly target these symptoms by directly discussing difficulties families experience in dealing with NSSI and/or BP behaviours. Additionally, multi-family interventions should also include exercises to improve dysfunctional family interactions that are associated with these symptoms. For example, since ‘communication’ improved only in families of restrictive patients, multi-family group interventions should more explicitly target strategies to increase communication between family members and strategies to reduce high levels of criticism or hostility especially in families of patients with BP behaviours. Therefore, it might be useful to include therapeutic exercises in which families are trained to regulate their emotions and to communicate with each other in difficult and emotional moments (e.g., Stewart, Voulgari, Eisler, Hunt, & Simic, 2015).

Further, our study revealed no major differences in outcomes between the MFT and MPT intervention on ED symptoms and caregiving experiences. So far, our research provided no direct arguments in favour of in- or excluding ED patients in multi-family group interventions. However, the discrepant viewpoints of patients, mothers and fathers (see Chapter 2, 3 and 6) provide an indirect argument to involve patients during multi-family-group interventions since including all family members in family interventions might be helpful to directly decrease informant discrepancies (Guo & Slesnick, 2013). Moreover, multi-family group therapy – especially in presence of patients - might provide an excellent context to target these discrepancies in a more explicit way (e.g., goldfish-bowl exercise; Chapter 5). Especially since patients are often highly critical (compared to their parents) about their family functioning which is known to be more predictive for negative treatment outcome than parent-reported family dysfunction (e.g., Ciao et al., 2015).

Finally, fathers should be explicitly encouraged to participate in these interventions since our research provided evidence that fathers tend to underestimate family dysfunction compared to the patients but also seem to experience less caring difficulties compared to the mothers. Presence of fathers during these sessions might also be supportive for mothers.

4. Conclusion

The current dissertation provided some evidence that the presence of additional symptoms such as BP behaviours and/or NSSI in ED patients is related to more disturbance in family interactions and indicated that especially mothers seem to be sensitive to the ED behaviours of their daughters. Moreover, some evidence is provided for the effectiveness of multi-family interventions both with or without patient participation in the treatment of adolescents with EDs. However, outcomes of these interventions differ depending on who is reporting and to a lesser extent on ED symptomatology. A key direction for future research is to identify the therapeutic ingredients of effective multi-family interventions for adolescents with EDs.

5. References

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APPENDIX A DSM-5 Diagnostic Criteria of Eating Disorders

Anorexia Nervosa (AN)

According to the DSM-5 criteria (2013, pp. 338), to be diagnosed as having Anorexia Nervosa a person must display:

- Persistent restriction of energy intake leading to significantly low body weight (in context of what is minimally expected for age, sex, developmental trajectory, and physical health).
- Either an intense fear of gaining weight or of becoming fat, or persistent behaviour that interferes with weight gain (even though significantly low weight).
- Disturbance in the way one's body weight or shape is experienced, undue influence of body shape and weight on self-evaluation, or persistent lack of recognition of the seriousness of the current low body weight.

Subtypes:

Restricting type

Binge-eating/purging type

Bulimia Nervosa (BN)

According to the DSM-5 criteria (2013, pp. 345), to be diagnosed as having Bulimia Nervosa a person must display:

- Recurrent episodes of binge eating. An episode of binge eating is characterised by both of the following:
 - Eating, in a discrete period of time (e.g. within any 2-hour period), an amount of food that is definitely larger than most people would eat during a similar period of time and under similar circumstances.
 - A sense of lack of control over eating during the episode (e.g. a feeling that one cannot stop eating or control what or how much one is eating).

- Recurrent inappropriate compensatory behaviour in order to prevent weight gain, such as self-induced vomiting, misuse of laxatives, diuretics, or other medications, fasting, or excessive exercise.
- The binge eating and inappropriate compensatory behaviours both occur, on average, at least once a week for three months.
- Self-evaluation is unduly influenced by body shape and weight.
- The disturbance does not occur exclusively during episodes of Anorexia Nervosa.

Binge Eating Disorder (BED)

According to the DSM-5 criteria (2013, pp. 350), to be diagnosed as having Binge Eating Disorder a person must display:

- Recurrent episodes of binge eating. An episode of binge eating is characterised by both of the following:
 - Eating, in a discrete period of time (e.g. within any 2-hour period), an amount of food that is definitely larger than most people would eat during a similar period of time and under similar circumstances.
 - A sense of lack of control over eating during the episode (e.g. a feeling that one cannot stop eating or control what or how much one is eating).
- The binge eating episodes are associated with three or more of the following:
 - eating much more rapidly than normal
 - eating until feeling uncomfortably full
 - eating large amounts of food when not feeling physically hungry
 - eating alone because of feeling embarrassed by how much one is eating
 - feeling disgusted with oneself, depressed or very guilty afterward
- Marked distress regarding binge eating is present
- Binge eating occurs, on average, at least once a week for three months

- Binge eating not associated with the recurrent use of inappropriate compensatory behaviours as in Bulimia Nervosa and does not occur exclusively during the course of Bulimia Nervosa, or Anorexia Nervosa methods to compensate for overeating, such as self-induced vomiting.

Note: Binge Eating Disorder is less common but much more severe than overeating. Binge Eating Disorder is associated with more subjective distress regarding the eating behaviour, and commonly other co-occurring psychological problems.

Unspecified Feeding or Eating Disorder (UFED)

According to the DSM-5 criteria (2013, pp. 354) this category applies to where behaviours cause clinically significant distress/impairment of functioning, but do not meet the full criteria of any of the Feeding or Eating Disorder criteria. This category may be used by clinicians where a clinician chooses not to specify why criteria are not met, including presentations where there may be insufficient information to make a more specific diagnosis (e.g. in emergency room settings).

Other Specified Feeding or Eating Disorder (OSFED)

According to the DSM-5 criteria (2013, pp. 353), to be diagnosed as having OSFED a person must present with a feeding or eating behaviours that cause clinically significant distress and impairment in areas of functioning, but do not meet the full criteria for any of the other feeding and eating disorders.

A diagnosis might then be allocated that specifies a specific reason why the presentation does not meet the specifics of another disorder (e.g., bulimia Nervosa- low frequency). The following are further examples for OSFED:

- **Atypical Anorexia Nervosa:** All criteria are met, except despite significant weight loss, the individual's weight is within or above the normal range.
- **Binge Eating Disorder** (of low frequency and/or limited duration): All of the criteria for BED are met, except at a lower frequency and/or for less than three months.

- **Bulimia Nervosa** (of low frequency and/or limited duration): All of the criteria for Bulimia Nervosa are met, except that the binge eating and inappropriate compensatory behaviour occurs at a lower frequency and/or for less than three months.
- **Purging Disorder:** Recurrent purging behaviour to influence weight or shape in the absence of binge eating
- **Night Eating Syndrome:** Recurrent episodes of night eating. Eating after awakening from sleep, or by excessive food consumption after the evening meal. The behavior is not better explained by environmental influences or social norms. The behavior causes significant distress/impairment. The behaviour is not better explained by another mental health disorder (e.g., BED).

APPENDIX B An overview of outcome studies on single-family therapy (SFT) in ED patients

Study	Participants	Methods	Outcomes	Conclusions
Ball and Mitchell (2004)	25 AN adolescents and young adults aged 13 – 23 years	RCT comparing BFST and CBT for AN adolescents and young adults	BMI Menses Morgan–Russell scales Eating Disorder Examination Eating Disorder Inventory Body dissatisfaction Anorectic Behavioural Observation Scale Beck Depression Inventory	No difference was found between the two treatment groups Significant improvements overall found in eating attitudes and behaviour, self-esteem, depression and state anxiety
Ciao et al. (2015)	See Lock et al. (2010)	See Lock et al. (2010)	McMaster Family Assessment Device Eating Disorder Examination Beck Depression Inventory Rosenberg Self-Esteem Scale Yale-Brown-Cornell Eating Disorder Scale General Self-Efficacy Scale Work and Social Adjustment Scale	Adolescents' perspectives on family functioning were the more impaired than parents' perspectives and were generally associated with poorer psychosocial functioning and greater clinical severity. FBT had a more positive impact on several specific aspects of family functioning compared to AFT
Dare et al. (2001)	84 patients with mean age = 26.3 years	RCT comparing 3 specialized therapies: SFT (Maudsley), focal psycho-analytic therapy, cognitive analytic therapy with a 'routine' control treatment (TAU)	Morgan–Russell scales BMI	SFT and psychoanalytic therapy were significantly superior to TAU; the cognitive analytic therapy also showed benefits compared with TAU
Eisler et al. (1997)	5-year follow up of Russell et al. (1987) Follow-up data collected from 77/80 participants	See Russel et al. (1987)	See Russell et al., 1987	FT was still favoured for early-onset AN Individual supportive therapy was more beneficial for late-onset AN

Eisler et al. (2000)	40 adolescents with AN with mean age 15.5 years	RCT comparing conjoint SFT with separated SFT (both based on Maudsley approach)	Short Mood and Feeling Questionnaire Rosenberg Self Esteem Inventory Maudsley Obsessional Compulsive Index Eating Attitude Test Eating Disorder Inventory Morgan-Russell scales Family Adaptability and Cohesion Evaluation Scales Standardised Clinical Family Interview	For those patients with high levels of maternal criticism towards the patient, the separated SFT was superior to the conjoint SFT. Symptomatic change was more marked in the separated SFT whereas there was considerably more psychological change in the conjoint SFT group
Godart et al. (2012)	60 female adolescents with AN aged 13 – 19 years	RCT comparing post-hospitalization outpatient TAU (individual sessions and family sessions) with TAU + family therapy sessions targeting intra-familial dynamics	ED symptoms Morgan-Russell scales BMI Menses Number of hospitalizations Social adjustment	At 18-months follow-up TAU+ SFT was more beneficial than only TAU
Le Grange et al. (2007)	80 adolescents with BN or partial BN with mean age = 16.1	RCT comparing outpatient SFT (modified Maudsley for BN) with an outpatient individual supportive psychotherapy (SPT) for adolescents.	Eating Disorder Examination Beck Depression Inventory Rosenberg Self-Esteem scale Schedule for Affective Disorders and Schizophrenia for School-Age Children Helping Relationship Questionnaire	SFT showed a clinical and statistical advantage over SPT at posttreatment and at 6-month follow-up. Reduction in core bulimic symptoms was also more immediate for patients receiving SFT vs SPT.
Le Grange et al. (2015)	130 adolescents with BN or partial BN with age range = 12 – 18 years	RCT comparing SFT (modified Maudsley for BN), CBT (adapted for adolescents) and individual supportive psychotherapy (SPT) for adolescents	Eating Disorder Evaluation Beck Depression Inventory Family Environment Scale Children's Yale–Brown Obsessive Compulsive Scale Eating Disorder Scale Schedule for Affective Disorders and Schizophrenia for School-Aged Children	SFT (Maudsley) was more effective in promoting abstinence from binge eating and purging than CBT in adolescent BN at end of treatment and 6-month follow-up. By 12-month follow-up, there were no statistically significant differences between the 2 treatments.

Rosenberg Self-Esteem Scale				
Lock et al. (2010)	121 adolescents with AN with mean age = 14.4	RCT comparing SFT (Maudsley) with AFT	Eating Disorder Examination BMI Schedule for Affective Disorders and Schizophrenia for School- Aged Children	Both treatments led to improvements but SFT (Maudsley) was more effective in facilitating full remission at 6 and 12-month follow-up.
Madden et al. (2015)	82 adolescents with medically unstable AN with age range: = 14.9 years	RCT comparing shorter hospitalization for medical stabilization or longer hospitalization for weight restoration followed by both followed by 20 sessions of out-patient SFT (Maudsley type)	Days of hospitalization following initial admission at 12-month follow-up Weight Eating Disorder Examination Morgan–Russell criteria Schedule for Affective Disorders and Schizophrenia for School- Aged Children Revised Child Anxiety Depression Scale Children's Obsessive Compulsive Inventory Rosenberg Self-Esteem Scale	Outcomes are similar with hospitalizations for medical stabilisation or weight restoration when combined with SFT.
Robin et al. (1994)	22 adolescents with AN with age range = 12–19 Years	RCT comparing SFT (BFST; behavioural family systems therapy) with EOIT (ego-oriented individual therapy).	BMI Eating Attitude Test Body Shape Questionnaire Eating Disorder Inventory Beck Depression Inventory Child Behaviour Checklist Parent Adolescent Relationship Questionnaire	Both groups increased significantly on BMI. BFST produced greater gains than EOIT in BMI, but not on eating attitudes or family conflict.
Robin et al. (1999)	37 adolescents with AN with age range = 11–20	RCT comparing BFST with ego oriented individual therapy plus medical and dietary regimen	BMI Eating Attitude Test Ego functioning Depression Family interactions	BFST produced greater weight gain and higher rates of resumption of menstruation than EOIT. Both treatments produced comparably large improvements in eating attitudes, depression, and eating-related family conflict, but very few changes occurred on ego functioning.

Russell et al. (1987)	80 patients with AN or BN and with mean age = 21.8	RCT comparing SFT (Maudsley) with individual supportive therapy (SPT) for one year beginning on hospital discharge after weight restoration	Weight Morgan-Russell Scales Menses Depression scale	SFT was found to be more effective than SPT in patients whose illness was not chronic and had begun before the age of 19 years. In older patients (> 19 years), SPT was superior to SFT but fell short of recovery. No significant differences in treatment for BN
Schmidt et al. (2007)	85 adolescents with with BN or ED-NOS and with mean age = 17.9	RCT comparing SFT (modified Maudsley for BN) with a CBT-guided selfcare group	BMI EATATE interview Short Evaluation of Eating Disorders An adapted version of the Oxford, England, Risk Factor Interview Client Service Receipt Inventory	No differences at 12-month follow-up. CBT had slight advantage in terms of rapid reduction of bingeing, lower costs and greater acceptability.

Notes. AFT = individual adolescent-focused therapy; AN = anorexia nervosa; BFST = behavioural family system therapy; EOIT = ego-oriented individual therapy; BMI = body mass index; BN = bulimia nervosa; CBT = cognitive behaviour therapy; RCT = randomized controlled trial; SFT = single family therapy; SPT = individual supportive therapy; TAU = treatment as usual

APPENDIX C

An overview of outcome studies on multi-family therapy (MFT) in ED patients

Study	Participants	Methods	Outcomes	Conclusions
Eisler et al. (2016)	169 adolescents with AN or ED-NOS (restricting type) with mean age = 15.7	Multi-centre RCT comparing outpatient multifamily therapy (MFT-AN) with outpatient SFT	Morgan/Russell Global outcome BMI Eating Disorder Examination Beck Depression Inventory Rosenberg Self-Esteem Scale Experience of Caregiving Inventory (completed by parents) Client Satisfaction Questionnaire	Both treatment groups showed clinically significant improvements in Morgan-Russell scores and with a statistically significant benefit in favour of the multifamily intervention at end of treatment. This difference in primary outcomes between the treatments was no longer significant at 18-months follow-up.
Gabel et al. (2014)	50 adolescents with AN with age range = 11 – 18 years	A pilot retrospective cohort study comparing TAU + MFT with TAU	Eating Disorder Examination Questionnaire Eating Disorder Inventory Children's Depression Inventory	Both treatment groups showed clinically significant weight improvements but patients enrolled in MFT were restored to a higher mean percent ideal body weight than the TAU group.
Geist et al. (2000)	25 adolescents with AN with age range = 12 - 17.4 years	RCT comparing SFT with MFT (family group psychoeducation)	Weight Family Assessment Measure	No difference between SFT and MFT.
Marzola et al. (2015)	74 adolescents with AN or ED-NOS restricting type with mean age = 14.8	Retrospective study comparing SFT with MFT	Eating Disorder Examination Eating Disorder Examination-Questionnaire	SFT and MFT showed comparable outcomes.

Notes. AN = anorexia nervosa; BMI = body mass index; BN = bulimia nervosa; ED-NOS = Eating disorder not otherwise specified; RCT= randomized controlled trial; SFT = single family therapy; SPT = individual supportive therapy; TAU = treatment as usual

APPENDIX D An overview of publications and presentations

Articles in internationally reviewed scientific journals

- Depestele L., Claes L., Dierckx E., Baetens I., Schoevaerts K., & Lemmens G. (2015). The role of non-suicidal self-injury and binge-eating/purging behaviours in family functioning in eating disorders. *European Eating Disorders Review*, 23, 413-416.
- Depestele L., Claes L., Dierckx E., Colman R., Schoevaerts K., & Lemmens G. (2017). An adjunctive multi-family group intervention with or without patient participation during an inpatient treatment for adolescents with an eating disorder: A pilot study. *European Eating Disorders Review*. Doi:10.1002/erv.2556.
- Depestele L., Claes L., Lemmens G. (2015). Promotion of an autonomy-supportive parental style in a multi-family group for eating-disordered adolescents. *Journal of Family Therapy*, 37, 24-40.
- Depestele L., Lemmens G., Dierckx E., Baetens I., Schoevaerts K., & Claes L. (2016). The role of non-suicidal self-injury and binge-eating/purging behaviours in the caregiving experience among mothers and fathers of adolescents with eating disorders. *European Eating Disorders Review*, 24, 257-260.
- Depestele L., Soenens B., Lemmens G., Dierckx E., Schoevaerts K., & Claes L. (2017). Parental autonomy-support and psychological control in eating disorder patients with and without binge-eating/purging behaviour and non-suicidal self-injury. *Journal of Social and Clinical Psychology*, 36, 126-141.
- Depestele, L. & Vandereycken, W. (2009). Families around the table. Experiences with a multi-family approach in the treatment of eating-disordered adolescents. *International Journal of Child and Adolescent Health*, 2, 255-261

Articles in nationally reviewed scientific journals

Desegher, J. & Depestele, L. (2009). Gezinsgroepen als alternatief voor gezinstherapie. *PsychoPraktijk*, 1, 11-14.

Depestele, L. & Vandereycken, W. (2007). Familiegroepstherapie bij jongeren met een eetstoornis. *Systeemtherapie*, 19, 217 – 233.

Depestele, L. & Vandereycken, W. (2007). Van zondebok tot supporter. De rol van ouders in de aanpak van eetstoornissen bij jongeren. *Caleidoscoop*, 19, 28-31.

Vandereycken, W. & Depestele, L. (2006). Groepsvormen van ouder- en gezinsbegeleiding bij adolescenten met een eetstoornis. *Psychiatrie & Verpleging*, 82, 308-318.

Depestele, L. & Vandereycken, W. (2004). Moeders met een eetstoornis: gevolgen voor hun kinderen. *PsychoPraxis*, 6, 122 – 126.

Meeting abstracts, presented at international scientific conferences and symposia, published or not published in proceedings or journals

Depestele, L., Schoevaerts, K., Claes, L., Dierckx, E., Baetens, I., & Lemmens, G. (2017). Family functioning and caregiving experiences in families with an eating disordered adolescent. International Systemic Research Conference (ISR). Heidelberg, Germany, 8-11 March 2017.

Depestele L., Claes L., Dierckx E., Schoevaerts K., & Lemmens G. (2016). Adjunctive multi-family therapy during an inpatient treatment for adolescents with an eating disorder. Conference of the European Family Therapy Association (EFTA). Athens, Greece, 28 September - 1 October 2016.

Meeting abstracts, presented at other scientific conferences and symposia

Depestele, L. (2017). *Over eetstoornissen en moeders aan de lijn*. Kennisdag van Eetexpert vzw, Leuven, België, 7 september 2017.

- Depestele, L. (2013). *Loskomen van je ouders, hoe doe je dat? De bespreking van een gezinsgroep bij jongeren met een eetstoornis*. Vlaams Congres Kinder- en Jeugdpsychiatrie. Antwerpen, België, 19-20 september 2013.
- Depestele, L., Claes, L., Dierckx, E., Baetens, I., Schoevaerts, K. & Lemmens, G. (2015). *Het gezinsfunctioneren bij eetstoornispatiënten: rol van type eetstoornis en zelfverwonding*. Poster gepresenteerd op het jaarlijkse congres van de Vlaamse Academie Eetstoornissen (VAE). Antwerpen, België, 13 oktober 2015.
- Depestele, L., Claes, L., Dierckx, E., Baetens, I., Schoevaerts, K. & Lemmens, G. (2015). *Gezinsfunctioneren van jongeren met eetstoornissen: invloed van subtype en/of zelfverwondend gedrag*. Jaarlijks Congres Belgische Vereniging voor Relatietherapie, Gezinstherapie en Systeemcounseling (BVRGS). Berchem, België, 20 maart 2015.
- Depestele, L., Claes, L., Dierckx, E. & Lemmens, G. (2014). *Samen uit, samen thuis, samen sterk. Familiegroepstherapie tijdens de opname van jongeren met een eetstoornis*. Vlaams Geestelijke Gezondheidscongres. Antwerpen, België, 16-17 september 2014.
- Depestele, L., Dierckx, E., Vandereycken, W., & Lemmens G. (2012, september). *Gezinsgroep versus oudergroep in een residentiële behandeling voor adolescenten met een eetstoornis: effecten op de zorglast van ouders*. Poster gepresenteerd op het Vlaams Geestelijke Gezondheidszorgcongres, Antwerpen, België, 18-19 september 2012.
- Vandeputte, A. & Depestele, L. (2015). *Nieuwe kapstokken voor omstaanders bij motivering tot verandering*. Jaarlijks congres Vlaamse Academie voor Eetstoornissen (VAE), Berchem, België, 13 oktober 2015.
- Depestele, L. & Simons A. (2011). *Hoe krijg je ouders gemotiveerd om mee te werken? Voorstelling van twee gezinsgroepsprogramma's voor eetstoornissen*. Kennisdag van Eetexpert vzw, Leuven, België, 8 september, 2011.